

PS Solution from Forums 2

1.	<p>Positive integer n leaves a remainder of 4 after division by 6 and a remainder of 3 after division by 5. If n is greater than 30, what is the remainder that n leaves after division by 30?</p> <p>(A) 3 (B) 12 (C) 18 (D) 22 (E) 28</p> <p>How to approach this Problem?</p>
	<p>Positive integer n leaves a remainder of 4 after division by 6 --&gt; <math>n = 6p + 4</math> --&gt; 4, 10, 16, 22, 28, ...</p> <p>Positive integer n leaves a remainder of 3 after division by 5 --&gt; <math>n = 5q + 3</math> --&gt; 3, 8, 13, 18, 23, 28, ...</p> <p><math>n = 30k + 28</math> - we have 30 as lcm of 5 and 6 is 30 and we have 28 as the first common integer in the above patterns is 28.</p> <p>Hence remainder when positive integer n is divided by 30 is 28.</p> <p>Answer: E.</p> <p>P.S. <math>n &gt; 30</math> is a redundant information.</p>
2.	<p><b>In the infinite sequence <math>a_1, a_2, a_3, \dots, a_n</math>, each term after the first is equal to twice the previous term. If <math>a_5 - a_2 = 12</math>, what is the value of <math>a_1</math>?</b></p> <p>A. 4 B. 24/7 C. 2 D. 12/7 E. 6/7</p>
	<p>The formula for calculating <math>n_{th}</math> term would be <math>a_n = 2^{n-1} * a_1</math> --&gt; <math>a_5 = 2^4 * a_1</math> and <math>a_2 = 2 * a_1</math>;</p> <p>Given: <math>a_5 - a_2 = 2^4 * a_1 - 2 * a_1 = 12</math> --&gt; <math>2^4 * a_1 - 2 * a_1 = 12</math> --&gt; <math>a_1 = \frac{12}{14} = \frac{6}{7}</math>.</p> <p>Answer: E.</p>
	<p>This is clearly a geometric progression.</p> <p>The nth term of a GP is given by <math>a_1 * r^{(n-1)}</math> where r is the ratio between two successive terms</p>

	$a_5 = a_1 2^{(5-1)} = a_1 2^4 = 16a_1$ $a_2 = a_1 2^{(2-1)} = a_1 2^1 = 2a_1$  $a_5 - a_2 = 12$ $16a_1 - 2a_1 = 12$ $14a_1 = 12$ $a_1 = 12/14$ $a_1 = 6/7$
	<p>Let the <math>a_1 = x</math>  therefore, <math>a_2 = 2x, a_3 = 4x, a_4 = 8x, a_5 = 16x</math>.</p> <p>It is given that <math>a_5 - a_2 = 12</math>, that means: <math>16x - 2x = 12</math>; <math>14x = 12</math>, therefore <math>x = \frac{6}{7} = a_1</math>.</p> <p>Answer is E.</p>
3	<p>GMATPREP. Two dogsled teams raced across a 300 mile course in Wyoming. Team A finished the course in 3 fewer hours than team B. If team A's average speed was 5 mph greater than team B's, what was team B's average mph?</p> <p>A. 12  B. 15  C. 18  D. 20  E. 25</p>
	<b>Ans. D.-20.</b>
4.	<p>268. Working at their respective constant rates, machine A makes 100 copies in 12 minutes and machine B makes 100 copies in 15 minutes. If a number of x machine A and a number of y machine B work simultaneously at their respective rates for 2 hours, what is the total number of copies that they will produce?</p> <p>(1) <math>x = y</math>.  (2) <math>5x + 4y = 90</math>.</p>
	<p>Rate of Machine A is 100/12 copies per minute and that of Machine Y is 100/15 copies per minute.</p> <p>When x number of A machines and y number of B machines work simultaneously at their respective rates for 2 hours (120 minutes), they will produce <math>120 * ((100/12) * x + (100/15) * y)</math> copies</p> <p><math>120 * ((100/12) * x + (100/15) * y)</math> on simplification becomes <math>200 * (5x + 4y)</math></p> <p>Statement 1 says <math>x = y</math>, which doesn't help us get the exact numbers, so insufficient</p> <p>Statement 2 says <math>5x + 4y = 90</math>, we cant solve for x and y from this, but all we need to answer the question is value of <math>5x + 4y</math> which we get from this statement, so sufficient.</p> <p>Answer B.</p>

5.	<p><b>Diophantine problem</b></p> <p>A rental car agency purchases fleet vehicles in two sizes: a full-size car costs \$10,000, and a compact costs \$9,000. How many compact cars does the agency own?</p> <p>(1) The agency owns 7 total cars.</p> <p>(2) The agency paid \$66,000 for its cars.</p> <p>Don't have the OA. I think this is an easy question but I am afraid that it might be deceptively simple. I just want to double check.</p>
	Answer: B.
6.	<p><b>Diophantine problem</b></p> <p>Eunice sold several cakes. If each cake sold for either exactly 17 or exactly 19 dollars, how many 19 dollar cakes did Eunice sell?</p> <p>A. Eunice sold a total of 8 cakes.</p> <p>B. Eunice made 140 dollars in total revenue from her cakes.</p>
	b
7.	<p><b>Diophantine problem</b></p> <p>Martha bought several pencils. If each pencil was either a 23 cent pencil or a 21 pencil, how many 23 cent pencils did martha buy?</p> <p>a) Martha bought a total of 6 pencils</p> <p>b) The total value of the pencils Martha bought was 130 cents.</p>
	B
8.	<p><b>Diophantine problem</b></p> <p>Joe bought only twenty cent stamps and thirty cent stamps. How many twenty cent stamps did he buy?</p> <p>(1) Joe bought more than 8 twenty cent stamps.</p> <p>(2) Joe bought a total of \$2.50 worth of stamps.</p>
	C
9.	<p>There are 2 bars of gold-silver alloy ;one pice has 2 parts of gold to 3 parts of silver and another has 3 parts of gold to 7 parts of silver. If both bars are melted into 8 kg bar with the final gold to silver ratio of 5:11. What was the weight of the first bar?</p> <p>1 kg</p> <p>3 kg</p> <p>5 kg</p> <p>6 kg</p>

	7 kg
	<p>X is weight of first bar and (8-x) is weight of second bar.  <math>(2/5)x + (3/10)(8-x) = (5/16)*8</math></p> <p><math>\Rightarrow x = 1</math>  <a href="http://gmatclub.com/forum/ps-melted-gold-silver-48285.html">http://gmatclub.com/forum/ps-melted-gold-silver-48285.html</a></p>
10.	<p>A bullet train leaves kyoto for Tokyo traveling 240 miles per hour at 12 noon. Ten minutes later, a train leaves Tokyo for Kyoto traveling 160 miles per hour. If Tokyo and Kyoto are 300 miles apart, at what time will the trains pass each other?</p> <p>a) 12.40 pm  b) 12.49 pm  c) 12.55 pm  d) 1.00 pm  e) 1.05 pm</p>
	<p>Time taken to meet = Distance/relative speed  Second train started 10 minutes later, the first train travels in 10 minutes = <math>240/60*10=40</math> miles  so they have to travel <math>300-40=260</math> miles  now, time = <math>[260/(240+160)]*60=39</math> minutes  as 10 minutes later <math>39+10=49</math> minutes</p> <p>Ans. B</p>
11.	<p>Stephanie, Regine, and Brian ran a 20 mile race. Stephanie and Regine's combined times exceeded Brian's time by exactly 2 hours. If nobody ran faster than 8 miles per hour, who could have won the race?</p> <p>I. Stephanie      II. Regine      III. Brian  (A) I only (B) II only (C) III only (D) I or II only (E) I, II, or III</p>
	<p>Minimum value of time for each the three = <math>20/8=2.5</math> hrs  <math>S+R=B+2</math>  <math>2.5+.25=B+2</math>  <math>B \text{ (Brian)}=3</math></p> <p>S and R will have greater value than B. So B could not win the race. Ans. D</p>
12	<p>Gp. Set A contains the consecutive integers ranging from x to y, inclusive. If the number of integers in set A that are less than 75 is equal to the number of integers that are greater than 75, what is the value of <math>3x+3y</math>?</p> <p>A.225  B.300  C.372  D.450</p>

	E.528
	<p>For any set of consecutive numbers, the average of the set will be the average of first and last number.</p> <p>Since, we know that the number of elements are evenly spaced and symmetrically distributed on both sides of 75, 75 must be the mean of the set.</p> $\frac{x+y}{2} = 75$ $x+y = 75*2 = 150$ <p>Multiply both sides by 3</p> $3x+3y = 3*150 = 450$ <p>Ans: "D"</p>
13.	<p>Ms. Barton has four children. You are told correctly that she has at least two girls but you are not told which two of her four children are those girls. What is the probability that she also has two boys? (Assume that the probability of having a boy is the same as the probability of having a girl.)</p> <p>(A) 1/4 (B) 3/8 (C) 5/11 (D) 1/2 (E) 6/11</p>
	<p>ou need to determine the number of favourable arrangements (i.e. arrangements for which # girls = 2) out of all possible arrangements (i.e. arrangements for which # girls &gt;= 2)</p> <p># arrangements for 2 girls and 2 boys (favourable arrangement) = <math>4! / (2!*2!) = 6</math>  # arrangements for 3 girls and 1 boy = <math>4! / (3!*1!) = 4</math>  # arrangements for 4 girls and 0 boys = <math>4! / 4! = 1</math></p> <p>Thus, # favourable arrangements / # possible arrangements = <math>6 / (6 + 4 + 1) = 6/11</math></p>
14.	<p>If equation <math>ax^2 + bx + c = 0</math> have two distinct roots, which of the following must be true?</p> <p>I. <math>b &gt; 0</math>  II. <math>ac &gt; 0</math>  III. <math>ac &lt; 0</math>  (A) None  (B) I only  (C) II only  (D) III only  (E) I and II only</p> <p>For a quadratic equation to have distinct root;</p>

$$b^2 > 4ac$$

I. What if  $b=0$

$0 > -ve$

Any negative result of  $a*c$  will suffice to make the quadratic equation to have two distinct roots

Let's choose

$$a=1$$

$$c=-1$$

$$b=0$$

$$1x^2-1=0$$

$$x^2=1$$

$$x = \pm 1$$

Two roots.

Not true that  $b$  must be more than 0.

II. What if  $ac < 0$

Let's choose

$$a=1$$

$$c=-1$$

$$b=0$$

$$1x^2-1=0$$

$$x^2=1$$

$$x = \pm 1$$

Two roots.

Not true that  $ac$  must be more than 0.

III. What if  $ac > 0$

$$a=1$$

$$b=4$$

$$c=3$$

$$x^2+4x+3=0$$

$$x^2+3x+x+3=0$$

	$x(x+3)+(x+3)=0$ $(x+1)(x+3)=0$ $x=-1$ $x=-3$ Two distinct root. Not true that $ac < 0$ must be true.  Ans: "A"
15.	For every positive even integer $n$ , the function $h(n)$ is defined to be the product of all the even integers from 2 to $n$ , inclusive. If $p$ is the smallest prime factor of $h(100)+1$ , then $p$ is (a) between 2 and 10 (b) between 10 and 20 (c) between 20 and 30 (d) between 30 and 40 (e) greater than 40
	Answer is E. This goes by the rule that any factor of $x$ will not be a factor of $(x+1)$ . Since, $h(100)$ is the product of all even integers from 2 to 100, hence, $h(100)$ will have all the prime factors that will appear between 1 and 50. since dividing this value by any of these prime numbers will yield a remainder of 1.  Since the smallest prime number that can be a factor of $h(100) + 1$ has to be greater than 50.
16.	A 4 cm cube is cut into 1 cm cubes. What is the percentage increase in the surface area after such cutting?  4% 166% 266% 300% 400%
	You have a 4 cm cube, so the surface area is $4*4(\text{area of one side})*6 \text{ sides}..= 96$ , which you agree with. Then figure out how many 1 cm cubes can fit into 4 cm cube. 4 cm cube's Volume is $4*4*4 = 64$ . A 1 cm cube's Volume is $1*1*1 = 1$ so $64/1 = 64$ little cubes.  Now for the surface area of each little cube: $1*1(\text{area of one side of one cube}) * 6 \text{ sides} = 6$ surface area of one cube. So, $64 \text{ cubes} * 6 \text{ surface area/cube} = 384$ Total surface area.

	<p>So, 384 new/96 old is 4 times or 400% so 300% difference or 288 (difference in area)/96 (original) = 3 or 300% difference.</p>
18.	<p>Gp. At a certain university, the ratio of the number of teaching assistants to the number of students in any course must always be greater than 3:80. At this university, what is the maximum number of students possible in a course that has 5 teaching assistants?</p> <p>(a) 130 (b) 131 (c) 132 (d) 133 (e) 134</p>
	<p><math>\frac{TA}{S} &gt; \frac{3}{80}</math></p> <p><math>\frac{5}{x} &gt; \frac{3}{80}</math></p> <p>400 &gt; 3x where x has to be maximum.</p> <p>Substituting the values, if x= 133, 3x=399.</p> <p>hence,D:)</p>
19.	<p>Gp. Last month 15 homes were sold in Town X. The average sale price of the homes was \$150,000 and the median sale price was \$130,000. Which of the following statements must be true?</p> <p>I. At least one of the homes was sold for more than \$165,000. II. At least one of the homes was sold for more than \$130,000 and less than \$150,000 III. At least one of the homes was sold for less than \$130,000.</p> <p>a) I only b) II only c) III only d) I and II e) I and III</p>
	<p>It makes sense that if the median price is <b>below</b> the average price, the average of seven highest prices should be <b>further from 150</b> than the average of the seven lowest prices, which we know is no more than 130. Since the average of the seven highest prices must therefore be at least 170, at least one of them must be more than 165.</p>



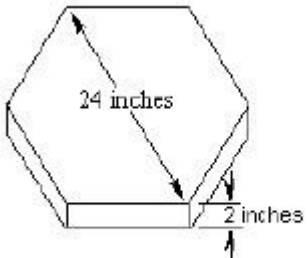
	<p>Ans. A</p>
	<p> <math>150 \times 15 = 2250</math>  <math>130 \times 8 = 1040</math>  <math>2250 - 1040 = 1210</math>  <math>1210 / 7 = 172</math>            Ans. A         </p>
20.	<p>Gp. For every integer k from 1 to 10, inclusive the "k"th term of a certain sequence is given by <math>(-1)^{(k+1)} \times \left(\frac{1}{2^k}\right)</math> if T is the sum of the first 10 terms in the sequence, then T is</p> <p>           a) greater than 2            b) between 1 and 2            c) between 1/2 and 1            d) between 1/4 and 1/2            e) less than 1/4         </p>
	<p>For the first term, it alternates between positive and negative. For even k, it is positive <math>1 \times \frac{1}{2^k}</math> and negative 1 for odd k.</p> <p>The first term is <math>1 \times \frac{1}{2} = \frac{1}{2}</math></p> <p>The second term is <math>-1 \times \frac{1}{4} = -\frac{1}{4}</math></p> <p><math>\frac{1}{2} - \frac{1}{4} = \frac{1}{4}</math></p> <p>The third term is <math>1 \times \frac{1}{8} = \frac{1}{8}</math></p> <p><math>\frac{1}{4} + \frac{1}{8} = \frac{3}{8}</math></p> <p>Looking at the answer choices, you don't need to continue. Since the denominator is increasing exponentially, the terms added and subtracted are becoming closer to 0. From the first term, we know we will never go above 1/2 After subtracting the second term, we know we will never go below 1/4.</p> <p>Ans. D.</p>
21.	<p>Gp. n questions can either be true or false. If you answer all n correct you win. What is the least value of n for which the probability is less than 1/1000 for you to win by guessing randomly?</p>

	5 10 50 100 1000
	<p>1 question; probability of winning = <math>1/2</math>  2 question; probability of winning = <math>(1/2)^2</math>  3 question; probability of winning = <math>(1/2)^3</math>  .  .  .  n question; probability of winning = <math>(1/2)^n</math></p> $\left(\frac{1}{2}\right)^n < \frac{1}{1000}$ <p>Or find n for which;  <math>2^n &gt; 1000</math>  <math>2^{10} = 1024 &gt; 1000</math></p> <p>n=10</p> <p>Ans: "B"</p>
22.	<p>Gp. A number when divided by 5 gives a number which is 8 more than the remainder obtained on dividing the same number by 34. Such a least possible number is</p> <p>A. 74  B. 75  C. 175  D. 680  E. 690</p>
	<p>Since the number has to be divisible by 5 and not divisible by 34, we can surely eliminate 74 and 680 from choices.</p> <p>Lets check the remaining three options</p> <p>75 - divided by 5 gives 15 and divided by 34 gives 7 as remainder and when 8 is added to 7, it</p>

	yields 15, so this one satisfies and hence is the answer.
23.	<p>Gp. If <math>n</math> is positive, which of the following could be the correct ordering of <math>1/x</math>, <math>2x</math>, and <math>x^2</math>?</p> <p><math>x^2 &lt; 2x &lt; 1/x</math>  <math>x^2 &lt; 1/x &lt; 2x</math>  <math>2x &lt; x^2 &lt; 1/x</math></p> <p>(A) None  (B) I  (C) III  (D) I and II  (E) I, II, and III</p>
	try the value of $x=0.5$ (Fraction) and $x=1$ (whole number) then i also get answer D.
24.	<p>Gp. 5 pieces of wood have an average length of 124cm and median length of 140cm. what is the maximum possible length of the shortest piece of wood?</p> <p>90  100  110  130  140</p>
	<p>Total value is <math>124 \times 5 = 620</math>  Median is 140, so there are must be three values of 140s i.e., <math>= 140 \times 3 = 420</math>  the sum of left values <math>620 - 420 = 200</math>  least value <math>200/2 = 100</math>  Ans. B</p>
25.	<p>Gp. For any positive integer <math>n</math> the length is defined as the number of prime numbers whose product equals <math>n</math>. So for 75 the length is 3 since <math>75 = 3 \times 5 \times 5</math>. How many 2 digit numbers have a length of 6.</p> <p>a) None  b) One  c) Two  d) Three  e) Four</p>
	<p>Lets start with the smallest prime number 2. <math>2^6</math> equals 64, so this is one possible 2 digit number with length 6.</p> <p>Next prime number is 3 If we replace one of the two's in <math>2^6</math> with 3 we get <math>2^5 \times 3 = 96</math> which is a two digit number with length 6.</p> <p>If we replace any of the two's in <math>2^5 \times 3</math> by any other prime number such as 3, 5 etc., we will get a number that has more than 2 digits.</p> <p>So, there are only two possibilities and Answer is C.</p>

26.	<p><b>Gp. A certain city with population of 132,000 is to be divided into 11 voting districts, and no district is to have a population that is more than 10 percent greater than the population of any other district. What is the minimum possible population that the least populated district could have?</b></p> <p>A. 10,700 B. 10,800 C. 10,900 D. 11,000 E. 11,100</p>
	<p>let p the population of least populous district with population, each of the remaining 10 districts would have a population 10% greater than the least populous district or 1.1p. Total population is 132000</p> <p><math>p + 10 \cdot (1.1p) = 132000</math>  <math>12p = 132,000</math>  <math>p = 11,000</math></p>
27.	<p>Gp. If x and y are positive, which of the following must be greater than <math>\frac{1}{\sqrt{x+y}}</math>?</p> <p>I. <math>\frac{\sqrt{x+y}}{2}</math>  II. <math>\frac{2}{\sqrt{x}-\sqrt{y}}</math>  III. <math>\frac{2}{x+y}</math></p>
	<p>Let's consider original statement: <math>\frac{1}{\sqrt{x+y}}</math></p> <p>How can we approach the problem fast? Let's see when the original statement is very large : x,y -  <math>\rightarrow 0</math> and <math>\frac{1}{\sqrt{x+y}}</math> goes to infinity.</p> <p>Now, let's see what do our options at x,y <math>\rightarrow 0</math>.</p> <p>I) <math>\frac{\sqrt{x+y}}{2}</math> goes to 0 at x,y <math>\rightarrow 0</math>.</p> <p>II) <math>\frac{\sqrt{x}+\sqrt{y}}{2}</math> goes to 0 at x,y <math>\rightarrow 0</math>.</p> <p>III) <math>\frac{\sqrt{x}-\sqrt{y}}{x+y}</math> hm... it has x+y as a denominator. But what if x=y? At x=y it equals 0.</p>

	<p>Ans. None</p> <p><a href="http://gmatclub.com/forum/greater-than-1-sqrt-x-y-82080.html">http://gmatclub.com/forum/greater-than-1-sqrt-x-y-82080.html</a></p>
28.	<p>210 college students were asked in a survey if they preferred windows or mac brand computers. 60 students claimed that they preferred mac to windows brand computers. One third as many of the students who preferred mac to windows, equally preferred both brands. 90 of the students had no preference. how many of the students in the survey preferred windows to mac brand computers?</p> <p>a-25 b-40 c-50 d-60 e-75</p>
	<p>Only Mac + Only Windows + Both + Neither = 210</p> <p>Both = <math>\frac{1}{3} * \text{Only Mac} = \frac{1}{3} * 60 = 20</math>  <math>60 + x + 20 + 90 = 210</math>  <math>x = 40</math></p> <p>So the answer is B.</p>
29.	<p>Gp. If x and y are positive, which of the following must be greater than <math>\frac{1}{\sqrt{x+y}}</math>?</p> <p>I. <math>\frac{\sqrt{x+y}}{2x}</math></p> <p>II. <math>\frac{\sqrt{x}+\sqrt{y}}{x+y}</math></p> <p>III. <math>\frac{\sqrt{x}-\sqrt{y}}{x+y}</math></p> <p>(A) None (B) I only (C) II only (D) I and III (E) II and III</p>
	<p>Since this question is a must be true type. If we can find even one scenario wherein the condition</p>

	<p>does not hold for either I, II or III we can eliminate that choice.</p> <p>Picking numbers as <math>x=1</math> and <math>y=1</math>, we can see that only the II option satisfies the condition.</p> $\frac{\sqrt{x}+\sqrt{y}}{x+y} > \frac{1}{\sqrt{x+y}}$ <p>Since <math>1 &gt; \frac{1}{\sqrt{2}}</math>. Answer is C.</p> <p>the idea is; if <math>x</math> and <math>y</math> are very small values, then the inverse of their sum or <math>\sqrt{\text{sum}}</math> will be very big</p>
30.	<p>Gp. If a certain sample of data has a mean of 20.0 and a standard deviation of 3.0, which of the following values is more than 2.5 standard deviation from the mean?</p> <p>a) 12.0 b) 13.5 c) 17.0 d) 23.5 e) 26.5</p>
	<p><math>2.5 * \text{standard deviation} = 2.5 * 3 = 7.5</math></p> <p>Either less than <math>20-7.5 = 12.5</math> or Greater than <math>20+7.5 = 27.5</math></p> <p>So answer is 12.0</p> <p>Answer (A).</p>
31.	<p><b>File comment:</b> Hexagon</p>  <p>Note: figure not drawn to scale.</p> <p>Geometry.jpg [ 6.1 KiB   Viewed 604 times ]</p> <p>The hexagonal face of the block shown in the figure above has sides of equal length and angles of equal measure. If each lateral face is rectangular, what is the area, in square inches, of one lateral face?</p> <p>(A) <math>2\sqrt{10}</math> (B) 12</p>

	<p>(C) 20 (D) <math>12\sqrt{3}</math> (E) 24</p>
	<p>Length of Diagonal of Hexagon ( D ) = 2 * Length of its side ( L ) Here D = 24, Therefore , L = D/2 = 12.</p> <p>Area of rectangle = Length * Breadth = 12 * 2 = 24</p> <p>Ans = 24</p>
32.	<p>GP. Circle C and line k lie in the xy plane. If circle C is centered at the origin and has radius 1, does line k intersect circle C?</p> <p>1) X-intercept of line k is greater than 1 2) The slope of line k is -1/10</p> <p>[Amir]</p>
	<p>And, I generally get scared of co-ordinate geometry, Can somebody point me to the right material?</p> <p>Let the equation of the line be <math>y = mx + c</math> where m is the slope and c is the y intercept. Then, the x intercept of this line is <math>-c/m</math></p> <p>Now, a line would intersect the given circle only if the length of perpendicular from its centre on the given line is less than or equal to the radius.</p> <p>Length of perpendicular from centre (origin in this case) to the given line is given by <math> c/\sqrt{(1+m^2)} </math>. This comes from the formula for the perpendicular distance of a point from a line.</p> <p>We need to find if <math> c/\sqrt{(1+m^2)} </math> is less than or equal to 1 (as radius is 1 in this case).</p> <p>Statement 1 gives <math>-c/m</math> is greater than 1. or c is less than -m. But under given condition <math> c/\sqrt{(1+m^2)} </math> can be greater than or less than one for various values of c and m. So, insufficient</p> <p>Statement 2 gives, <math>m = -1/10</math>. Here again, <math> c/\sqrt{(1+m^2)} </math> can be less than or more than 1 for various values of c. So, insufficient</p>

	<p>Combining 1) and 2) also, we cant ascertain for sure if <math> c/\sqrt{(1+m^2)} </math> would always be less than or equal to 1. So, insufficient.</p> <p>Hence, Answer is E.</p>
33.	<p>Does <math>7x = 14 + 2x</math></p> <p>(1) <math>-3x \leq 9</math></p> <p>(2) <math>2x \geq 6</math></p>
	<p><math>7x = 14 + 2x</math></p> <p><math>5x = 14</math></p> <p><math>x = 2.8</math></p> <p>Q: Is <math>x=2.8</math>?</p> <p>1.</p> <p><math>-3x \geq -9</math></p> <p><math>-x \geq -3</math></p> <p><math>x \leq 3</math></p> <p>Means;</p> <p>x is either 3 or less than 3.</p> <p>x can be 3, 2.9, 2.8, 0, -90</p> <p>x may or may not be equal to 2.8</p> <p>Not Sufficient.</p> <p>2.</p> <p><math>2x \geq 6</math></p> <p><math>x \geq 3</math></p> <p>Means;</p> <p>x can never be equal to 2.8 because it is either equal to 3 or more than 3.</p> <p>Sufficient.</p> <p>Ans: "B"</p>
34	<p>if set <math>s = \{7, y, 12, 8, x, 9\}</math> is <math>x+y</math> less than 18?</p> <p>1. range of set s is less than 9</p> <p>2. average of x and y is less than average of set s.</p>
	<p>1) <math>x = 5, y = 11</math> range (12-5) is less than 9 and <math>x+y &lt; 18</math></p> <p>but <math>x = 5, y = 13</math> here range is less than 8 but <math>x+y = 18</math> so INSUFFICIENT.</p> <p>From (2)</p>



	$(x+y)/2 < (7 + y + 12 + 8 + x + 9)/6$ $\Rightarrow 6(x+y) < 2(x+y + 36)$ $\Rightarrow 4(x+y) < 2*36$ $\Rightarrow (x+y) < 18$ <p>So Answer - B</p>
35.	<p>Gp. What is the ratio of number of cups of flour to number of cups of sugar in a cake recipe?</p> <p>1) The number of cups of flour required in the recipe is 250% of number of cups of sugar required.</p> <p>2) 1.5 more cups of flour than cups of sugar are required in the recipe</p>
	<p>From (1)</p> <p><math>F/C = 250\% = 250/100</math>, so enough (the ratio can be found = 2.5)</p> <p>Sufficient</p> <p>From (2)</p> <p><math>F = C + 1.5</math></p> <p>Ratio can't be found</p> <p>So not sufficient</p> <p>Answer - A</p>
36.	<p>Gp. A boat traveled upstream 90 miles at an average speed of <math>(v-3)</math> miles per hour and then traveled the same distance downstream at an average speed of <math>(v+3)</math> miles per hour. If the trip upstream took a half hour longer than the trip downstream, then how many hours did it take the boat to travel downstream?</p> <p>(A) 2.5 (B) 2.4 (C) 2.3 (D) 2.2 (E) 2.1</p>
	<p>Trip upstream took <math>\frac{90}{v-3}</math> hours and trip downstream took <math>\frac{90}{v+3}</math> hours. Also given that the difference in times was <math>\frac{1}{2}</math> hours <math>\rightarrow \frac{90}{v-3} - \frac{90}{v+3} = \frac{1}{2}</math>;</p>

	$\frac{90}{v-3} - \frac{90}{v+3} = \frac{1}{2} \rightarrow \frac{90(v+3) - 90(v-3)}{v^2-9} = \frac{1}{2} \rightarrow \frac{90*6}{v^2-9} = \frac{1}{2} \rightarrow v^2 = 90*6*2 + 9 \rightarrow$ $v^2 = 9*(10*6*2+1) \rightarrow v^2 = 9*121 \rightarrow v = 3*11 = 33;$ $\text{Trip downstream took } \frac{90}{v+3} = \frac{90}{33+3} = 2.5 \text{ hours.}$ <p>Answer: A.</p>
36.	<p>Gp. In the equation <math>(1/5)^m(1/4)^{18} = 1/2(10)^{35}</math> what is the value of m?</p> <p>a.18 b.17 c.35 d. 36 5. 40</p>
	$\frac{1}{5^m} * \frac{1}{(2^2)^{18}} = \frac{1}{2(2*5)^{35}}$ $\frac{1}{5^m * 2^{36}} = \frac{1}{2(2^{35} * 5^{35})}$ $\frac{1}{5^m * 2^{36}} = \frac{1}{2^{36} * 5^{35}}$ $\frac{1}{5^m} = \frac{1}{5^{35}}$ $5^m = 5^{35}$ <p><math>m = 35</math></p>
37	<p>Gp. What value is closest to <math>2^5 + 2^5 + 3^5 + 3^5 + 3^5</math>?</p> <p>a. <math>5^6</math> b. <math>13^5</math> c. <math>2^6 + 3^6</math> d. <math>2^7 + 3^8</math> e. <math>4^5 + 9^5</math></p> <p>Sol:</p> $2^5 + 2^5 + 3^5 + 3^5 + 3^5$ $2^5(1+1) + 3^5(1+1+1); \text{Taking } 2^5 \& 3^5 \text{ common}$ $2^5*2 + 3^5*3$ $2^5*2^1 + 3^5*3^1$ $2^{(5+1)} + 3^{(5+1)}; x^m * x^n = x^{(m+n)}$ $2^6 + 3^6$ <p>Ans: "C"</p>
38.	<p>Gp. In isosceles triangle RST what is the measure of angle R?</p> <p>(1) The measure of angle T is 100 degrees.</p> <p>(2) The measure of angle S is 40 degrees.</p>

	Ans. A
39.	<p>Gp. A certain scholarship committee awarded scholarships in the amounts of \$1250,\$2500 and \$4000. The Committee awarded twice as many \$2500 scholarships as \$4000 and it awarded three times as many \$1250 scholarships as \$2500 scholarships. If the total of \$37500 was awarded in \$1250 scholarships, how many \$4000 scholarships were awarded?</p> <p>A.5 B.6 C.9 D.10 E.15</p>
	<p>4000=x 2500=2x 1250=6x</p> <p>Total Scholarship=37,500/1250=30 So 6x=30 X=5 Ans. A.</p>
40.	<p>Gp. Lines n and p lie in the xy-plane. Is the slope of line n less than the slope of line p? (1) Line n and p intersect at point (5,1) (2) The y intercept of line n is greater than the y- intercept of line p</p>
	<p>The OA is C - I got this question on the GMATPrep test.</p> <p>It still puzzles me a bit, though - I also think about that option when the y-intercepts of n and p are both positive.</p> <p>Lets take point (0,4) as y-intersept of n, and point (0,3) as y-intersept of p</p> <p>The slope of n is <math>4-1/0-5=-3/5=-0.6</math></p> <p>The slope of p is <math>3-1/0-5=-2/5=-0.4</math></p> <p>BUT <math>-0.6 &gt; -0.4</math> IS NOT TRUE!!!</p> <p>Can someone figure out this discrepancy and explain it in terms of real numbers, not formulas?</p> <p>Thanks a lot in advance!</p> <p>The questions asks <b>"Is the slope of line n less than the slope of line p?"</b></p> <p>Based on your number, -0.6 IS smaller than -0.4, so the answer is YES, C is sufficient</p>
41.	<p>Gp. While working alone at their constant rates computer X can process 240 files in 4 hours, and comp Y 240 files in 8 hrs. If all files processed by these computer are the same size how long would it take the two comp. working at the same time at their respective constant rates, to</p>

	<p>process a total of 240 files?</p> <p>(A) 2hrs (B) 2hrs 20 min (C) 2hrs 40 min (D) 6hrs (E) 6hrs 20 min</p>
	<p>X in one hour = <math>240/4 = 60</math> files Y in one hour = <math>240/8 = 30</math> files X+ Y in one hour <math>60+30=90</math> files So together they will take <math>(240/90)= 2</math> hours 40 minutes.</p>
42	<p>Gp. Last year, a certain public transportation system sold an average (arithmetic mean) of 41,000 tickets per day on weekdays (Monday through Friday) and an average of 18,000 tickets per day on Saturday and Sunday. Which of the following is closest to the total number of tickets sold last year?</p> <p>(A) 1 mil (B) 1.25 mil (C) 10 mil (D) 12.5 mil (E) 125 mil</p>
	<p><math>41000 * 5 = 205</math> <math>18000 * 2 = 36</math> <math>241 * 52 = 12532000</math></p> <p><math>12532000/1000,000 = 12.5</math> million</p> <p>Ans. D</p>
43.	<p>Gp. If the product of the three digits of the positive integer K is 14, what is the value of K?</p> <p>(1) K is an odd integer (2) <math>K &lt; 700</math></p>
	<p><math>14 = 1*2*7</math> so 3 digit numbers could be 127,172,217,271,712,721</p> <p><u>Statement 1:</u> k is an odd integer means K could be 127,217,271,721 -----insufficient</p> <p><u>statement 2:</u> <math>k &lt; 700</math> means 127,217,271 ---insufficient</p> <p>Combining both 127,217,271 could be any of them so insufficient ANS(E)</p>
44.	<p>Gp. If x is a positive integer, is <math>x &lt; 16</math> ?</p> <p>1) x is less than the average (arithmetic mean) of the first ten positive integers.</p>

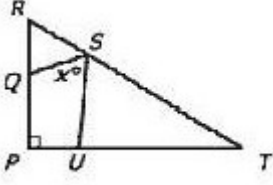
	2) x is the square of an integer.
	<p>Ans. A</p> <p>Average of first ten positive integers is 5.5</p> <p>1: If <math>x &lt; 5</math>, it means x is definitely less than 16. Sufficient</p> <p>2: x can be 16, 25, 36 etc. Not sufficient</p>
45.	<p>Gp. The function f is defined for all positive integers n by the following rule: f(n) is the number of positive integers each of which is less than n and also has no positive factor in common with n other than 1. If p is a prime number then f(p) =</p> <p>A) p-1 B) p-2 C) (p+1)/2 D) (p-1)/2 E) 2</p>
	<p>If we consider p=7 how many numbers are less than 7 having no common factors with 7: 1, 2, 3, 4, 5, 6 --&gt; 7-1=6.</p> <p>Answer: A.</p> <p><a href="http://gmatclub.com/forum/the-function-f-n-103852.html">http://gmatclub.com/forum/the-function-f-n-103852.html</a></p>
46.	<p>GP. If n and P are integers, is p&gt;0?</p> <p>(1) <math>n+1 &gt; 0</math> (2) <math>np &gt; 0</math></p>
	<p>(1) No information about p. So insuff.</p> <p>(2) It could be for <math>n=-1</math>, and <math>p=-1</math>, or <math>n=1</math>, and <math>p=1</math>. So insuff.</p> <p>But considering C</p> <p>As <math>n+1&gt;0</math> so n must be greater than 0</p> <p>And as <math>np&gt;0</math> so p also greater than 0.</p> <p>Ans. C.</p>
47.	<p>Gp. In the xy-plane, line K passes through the point ( 1,1 ) and line M passes through the point ( 1,-1 ). Are lines K and M perpendicular to each other ?</p> <p>(1) Lines K and M intersect at the point ( 1,-1 ) (2) Line K intersects the x-axis at the point ( 1,0 )</p>
	E
48.	<p>Gp. <math>5^{21} \times 4^{11} = 2 \times 10^n</math></p> <p>Please break all non-prime numbers into prime factors</p> <p><math>4 = 2^2</math> <math>10 = 2 \times 5</math></p> <p>Let's solve:</p> <p><math>5^{21} \times 4^{11} = 2 \times 10^n</math>  <math>5^{21} \times (2^2)^{11} = 2 \times (2 \times 5)^n</math>  <math>5^{21} \times 2^{22} = 2 \times 2^n \times 5^n</math> <b>Note:</b> <math>(x^m)^n = x^{m \times n}</math> <b>Also;</b> <math>(x \times y)^k = x^k \times y^k</math>  <math>5^{21} \times 2^{22} = 2^{(n+1)} \times 5^n</math></p>

	<p><b>Comparing the RHS and LHS; we just have two distinct prime factors 2 and 5. Their respective exponents must also match</b></p> <p><b>Thus,</b>  <math>5^n = 5^{21}</math>  <math>n = 21</math></p> <p>OR  <math>2^{(n+1)} = 2^{22}</math>  <math>n+1 = 22</math>  <math>n = 21</math></p>
49.	<p>GP. Jug contains water and orange juice in the ratio 5:7 . another jug contains water and orange juice in ratio 7 : 2 . In what proportion should these 2 liquids be mixed to give a water and orange juice in ratio 3 : 4</p> <p>4 : 5</p> <p>85 : 3</p> <p>88 : 3</p> <p>2 : 3</p> <p>87 : 7</p>
	<p>In such questions focus on one thing - either water or orange juice. Let's work with water  Jug1 - Water concentration is 5/12  Jug2 - Water concentration is 7/9  Mixture - Water concentration is 3/7</p> <p>Now, <math>\frac{w_1}{w_2} = \frac{\frac{7}{9} - \frac{3}{7}}{\frac{3}{7} - \frac{5}{12}} = \frac{88}{3}</math></p>
	<p>Let x ml of Jug 1 be mixed with y ml of jug 2</p> <p><math>5x/12 + 7y/9 = 3/7*(x+y)</math></p> <p><math>7x/12 + 2y/9 = 4/7 *(x+y)</math></p> <p><math>\Rightarrow (15x + 28y)/36 = 3/7 * (x+y)</math></p> <p><math>\Rightarrow 105x + 196y = 108x + 108y</math></p> <p><math>\Rightarrow 88y - 3x = 0</math></p>

	$\Rightarrow x/y = 88/3$  Answer - C
50.	<p>GP. For any triangle T in the xy-coordinate plane, the center of T is defined to be the point whose x-coordinate is the average (arithmetic mean) of the x-coordinates of the vertices of T and whose y-coordinate is the average of the y-coordinate of the vertices of T. If a certain triangle has vertices at the points (0, 0) and (6, 0) and center at the point (3, 2), what are the coordinates of the remaining vertex?</p> <p>a)(3, 4)          b)(3, 6)          c)(4, 9)          d)(6, 4)          e)(9, 6)</p>
	<p>b)(3, 6)          this is an easy question and the question is simply for finding the centroid of a triangle to begin with consider the third unknown vertex to be (x,y)          so avg of all x coordinates of the triangle vertices should be equal to 3 as it is given 3 is the x coordinate of the center          therefore <math>(0+6+x)/3=3</math>          so <math>x=3</math> is the required x coordinate same is for y coordinate  <math>(0+0+y)/3=2</math>          on solving <math>y=6</math>           hence the coordinates are (3,6)</p>
51	<p>GP. Equal amounts of water were poured into two empty jars of different capacities, which made one jar <math>1/4</math> full and the other jar <math>1/3</math> full. If the water in the jar with the lesser capacity is then poured into the jar with the greater capacity, what fraction of the larger jar will be filled with water?</p> <p>a)<math>1/7</math>          b)<math>2/7</math>          c)<math>1/2</math>          d)<math>7/12</math>          e)<math>2/3</math></p>
	<p>The answer is C. imagine 2 jars: A and B. <math>1/4A = 1/3B</math> b/c the same amount of water is in each  <math>1/4 + 1/3B = 1/4A + 1/4A = 1/2A</math>. Remember <math>1/3B = 1/4A</math>. make sense?          So,</p>

	<p>Let's assume the jar with bigger capacity can hold 4gallons of water and the one with lesser capacity can hold 3gallons of water. The one with 4gallons is <math>\frac{1}{4}</math>full, therefore with 1gallon. The one with 3gallons is <math>\frac{1}{3}</math>full, therefore also with 1gallon. Satisfied with the condition given. Now, pour the one with 1 gallon from the lesser capacity to the bigger capacity jar. The bigger capacity jar now have 2gallons of water of <math>\frac{1}{2}</math> of it's capacity full.</p> <p>Therefore C is your answer.</p>
	<p>Equal amount of water poured into the jars so, <math>\frac{1}{4} = \frac{1}{3}</math>  If water of smaller jar poured into larger jar then, <math>\frac{1}{4} + \frac{1}{3} = \frac{1}{4} + \frac{1}{4}</math> [as <math>\frac{1}{3} = \frac{1}{4}</math>]  <math>= \frac{1}{2}</math></p> <p>Ans. C.</p>
52.	<p>GP. A college admissions officer predicts that 20 percent of the students who are accepted will not attend the college. According to this prediction, how many students should be accepted to achieve a planned enrollment of x students?</p> <p>a)1.05x  b)1.1x  c)1.2x  d)1.25x  e)1.8x</p>
53.	<p>20% did not attended  so enrolled 80%  and accepted 100%  Thus, <math>100/80 * x = 1.25x</math>  Ans. D</p>
54.	<p>GP. Joshua and Jose work at an auto repair center with 4 other workers. For a survey on health care insurance, 2 of the 6 workers will be randomly chosen to be interviewed. What is the probability that Joshua and Jose will both be chosen?</p> <p>a)1/15  b)1/12  c)1/9  d)1/6  e)1/3</p>
	<p><math>(\frac{1}{6} * \frac{1}{5}) * 2 = \frac{2}{30} = \frac{1}{15}</math></p>
	<p>(choosing Joshua out of six workers*choosing Jose out of five workers) = <math>\frac{1}{6} * \frac{1}{5} = \frac{1}{30}</math>  or  (choosing Jose out of six workers*choosing Joshua out of five workers) = <math>\frac{1}{6} * \frac{1}{5} = \frac{1}{30}</math>  <math>\frac{1}{30} + \frac{1}{30} = \frac{2}{30} = \frac{1}{15}</math>  the answer is (A)</p>



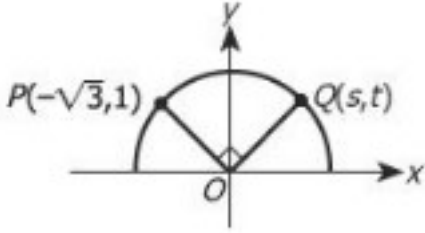
	<p>Number of ways to choose 2 worker out of 6 = <math>6C2 = 15</math>  Out of these 15 combinations, only one combination is our required combination, i.e Joshua and Jose.</p> <p>Hence, required probability = <math>1/15</math></p>
55.	 <p>GP. In the figure above, what is the value of x?</p> <ol style="list-style-type: none"> <li>1) The length of line segment QR Is equal to the length of line segment RS</li> <li>2) The length of line segment ST Is equal the length of line segment TU.</li> </ol> <p>From (1) <math>RSQ = RQS</math></p> <p>From (2) <math>SUT = TSU</math></p> <p>Because these 3 angles are on a straight line:</p> $x + RSQ + TSU = 180$ <p>As all the angles of a quadrilateral sum up to 360:</p> $x + 90 + 180 - RSQ + 180 - TSU = 360 \text{ [TUS/SUT =TSU ]}$ $\Rightarrow x + 360 - (RSQ + TSU) + 90 = 360$ $\Rightarrow x + 90 - (180 - x) = 0$ $\Rightarrow 2x - 90 = 0$ $\Rightarrow x = 45$ <p>So the answer is C.</p> <p><a href="http://gmatclub.com/forum/value-of-x-111920-20.html">http://gmatclub.com/forum/value-of-x-111920-20.html</a></p>
56	<p>GP. The area of a square garden is A square feet and the perimeter is P feet. If <math>A = 2P+9</math>, what is the perimeter of the garden in feet?</p> <ol style="list-style-type: none"> <li>a. 28</li> <li>b. 36</li> <li>c. 40</li> </ol>

	<p>d. 56 e. 64</p>
	<p>Let "s" be the side of square.</p> <p>Area, <math>A = s^2</math> Perimeter, <math>P = 4s</math></p> <p>Given, <math>A = 2P + 9</math> substitute value of A and P  <math>s^2 = 2(4s) + 9</math>  <math>s^2 = 8s + 9</math>  <math>s^2 - 8s - 9 = 0</math>  Solving, we get <math>(s - 9)(s + 1) = 0</math>  Therefore, <math>s = 9</math> or <math>s = -1</math>  But side cannot be negative, therefore <math>s = 9</math></p> <p>Perimeter = <math>4s = 4 \times 9 = 36</math></p> <p>Answer B</p>
57.	<p>GP. The content of a certain box consists of 14 apples and 23 oranges. How many oranges must be removed from the box so that 70 percent of the pieces of fruit in the box will be apples?</p> <p>A. 3 B. 6 C. 14 D. 17 E. 20</p>
	<p><math>x</math> = no of oranges to be removed  <math>14 = 70\%(37 - x)</math>  doing the whole calculation and I get 17..</p>
	<p>The objective here is that 70% of the fruit in the box should be apples.</p> <p>Now, there are 14 apples at start and there is no talk of removing any apples, so number of apples should remain 14 and they should constitute 70% of total fruit, so total fruit = <math>14/0.7 = 20</math></p> <p>So we should have <math>20 - 14 = 6</math> oranges.</p> <p>Right now, there are 23 oranges, so to get to 6 oranges, we should remove <math>23 - 6 = 17</math> oranges.</p> <p>Answer D</p>
58.	<p>GP. Grocer stacked oranges in a pile. Bottom layer was rectangular with 3 rows of 5 oranges each. In 2nd layer, from bottom, each orange rested on 4 oranges from bottom layer and in the 3rd layer each orange rested on 4 oranges from 2nd layer. Which of the following is max.no. of oranges that could have been in 3rd layer.</p> <p>(A) 5 (B) 4</p>

	<p>(C) 3 (D) 2 (E) 1</p>
	<p>As mentioned in the question the first layer of the pile looks like this (each symbol <i>o</i> represents one orange):</p> <p>o o o o o</p> <p>o o o o o</p> <p>o o o o o</p> <p>Now since each orange of the second layer has to be supported by 4 oranges of the first layer there will be two rows of 4 oranges each (shown in blue font):</p> <p>o o o o o</p> <p>o o o o</p> <p>o o o o o</p> <p>o o o o</p> <p>o o o o o</p> <p>Repeat the same step for the third layer and you'll see that there are 3 oranges in the third layer (shown in red font):</p> <p>o o o o</p> <p>o o o</p> <p>o o o o</p> <p>Hence option c is correct.</p>
59.	<p>GP. If <math>a &gt; 0</math>, <math>b &gt; 0</math> and <math>c &gt; 0</math>, is <math>a(b-c)=0</math>?</p> <p>(1) <math>b-c = c-b</math> (2) <math>b/c = c/b</math></p>
	<p><math>a &gt; 0</math>, <math>b &gt; 0</math>, <math>c &gt; 0</math> for 1), <math>b-c=c-b \implies 2b=2c \implies b=c</math> therefore <math>a(b-c)=0</math>, suff</p> <p>for 2), <math>b/c=c/b \implies b^2=c^2</math> because <math>b &gt; 0</math>, <math>c &gt; 0</math>, <math>\implies b=c</math> therefore <math>a(b-c)=0</math>, suff</p> <p>Ans. D</p>
60.	<p>GP. If the eleven consecutive integers are listed from least to greatest, what is the average (arithmetic mean) of eleven integers?</p> <p>(1) The average of the first nine integers is 7 (2) The average of the last nine integers is 9</p>

	<p>The only fundamental we need to remember is that for a equally spaced set , if the total number of items are odd then mean = median.</p> <p>Consecutive numbers are a special case of equally spaced set.</p> <p>So for 11 conscutive integers 6th number is the median so it will be the mean.</p> <p>St1. the mean of first 9 integers is 7, which tells that the 5th number is 7, you know 5th number so you know 6th number is 8.</p> <p>So avg of 11 numbers is 8.</p> <p>SUFFICIENT.</p> <p>St.2 In this list of 9 numbers mean is 9 so median = 9. this is 7th number of original list so 6th number is 8. Which is the median = mean.</p> <p>SUFFICIENT</p> <p>Ans D.</p>
61.	<p>GP. Bob invested \$2000 in fund A and \$1000 in fund B. Over the next two years, the money in fund A earned a total interest of 12 percent for the two years combined and the money in fund B earned 30 percent annual interest compounded annually. Two years after Bob made these investments, Bob's investment in fund A was worht how much more than his investment in fund B?</p> <p>A. 500 B. 550 C. 600 D. 650 e. 700</p>
	<p>GP. Fund A=2000 Interest for 2 yrs = 12% Amount = <math>2000 \times 112/100 = 2240</math></p> <p>Fund B = 1000 Interest = 30% Amount = <math>1000(1+30/100)^2 = 1690</math></p> <p>Amount(A)-Amount(B) = <math>2240-1690=550</math>(ANS)(B)</p>
62.	<p>GP. According to directions on a can of frozen orange juice concentrate, 1 can of concentrate is to be mixed with 3 cans of water to make orange juice. How many 12-ounce cans of the concentrate are require to prepare 200 6-ounce servings of orange juice?</p> <p>a) 25 b) 34</p>

	<p>c) 50 d) 67 e) 100</p>
	<p>How many 12-ounce cans of the concentrate are require to prepare 200 6-ounce servings of orange juice?</p> <p><math>200 * 6 = 1200</math> ounce servings..</p> <p>Given concentrate : water = 1 : 3</p> <p>So, <math>x + 3x = 1200</math></p> <p>solving, <math>x = 300</math></p> <p>So concentrate = 300 ounces.</p> <p>In terms of 12 ounce cans = <math>300/12 = 25</math>  <a href="http://gmatclub.com/forum/ratio-question-source-gmat-prep-74955.html">http://gmatclub.com/forum/ratio-question-source-gmat-prep-74955.html</a></p>
	<p>1 can of concentration + 3 cans of water = orange juice [1:3:4]</p> <p>if each can is 12 ounces</p> <p>then 1 can of 12 ounce concentration + 3 cans of 12 ounce water = orange juice  so lets take the number of cans as x</p> <p><math>12x + 3x(12) = 200 \times 6</math></p> <p><math>12x + 36x = 1200</math></p> <p><math>48x = 1200</math></p> <p><math>x = 1200 / 48</math></p> <p><math>x = 25</math></p> <p>answer is A.  <a href="http://gmatclub.com/forum/ratio-question-source-gmat-prep-74955.html">http://gmatclub.com/forum/ratio-question-source-gmat-prep-74955.html</a></p>
63.	<p>GP. Are x and Y both positive?</p> <p>1) <math>2X-2Y = 1</math>  2) <math>(x/y) &gt; 1</math></p>
	<p>i did same u subhashghosh  (1) <math>2x-2y=1</math></p>

	<p><math>x-y=1/2</math> so <math>y</math> could be +ve or -ve insuff.</p> <p>(2) <math>x/y&gt;1</math> here <math>x</math> and <math>y</math> both could be +ve or -ve. so insuff.</p> <p>Considering C from (1) <math>x</math> is positive so from (2) <math>y</math> must be positive. Ans. C. Link: <a href="http://gmatclub.com/forum/are-x-and-y-both-positive-gmat-prep-cat-63377-20.html">http://gmatclub.com/forum/are-x-and-y-both-positive-gmat-prep-cat-63377-20.html</a></p>
64.	<p>GP. On a certain sightseeing tour, the ratio of the number of women to the number of children was 5 to 2. What was the number of men on the sightseeing tour?</p> <p>1. On the tour, the ratio of the number of children to the number of men was 5 to 11 2. The number of women on the sightseeing tour was less than 30.</p>
	<p>Another specific way of answering: Given <math>w/c=5/2</math>, <math>c=2/5(w)</math> (1) <math>c/m=5/11</math>, <math>m=11/5(c)</math> insufficient (2) <math>w&lt;30</math>, no information about men, insufficient.</p> <p>Considering C: <math>m=11/5c</math> <math>=11/5 * 2/5(w)</math> <math>=22/25(w)</math> and <math>w&lt;30</math> here only 25 is a multiple of 25. so <math>w=5</math> <math>=22</math> Ans. C. <a href="http://gmatclub.com/forum/sightseeing-tour-ds-24311.html#p926894">http://gmatclub.com/forum/sightseeing-tour-ds-24311.html#p926894</a></p>
65.	 <p>GP. In the figure above, points P and Q lie on the circle with center O. What is the value of <math>s</math>?</p> <p>A) <math>1/2</math> B) 1 C) <math>\sqrt{2}</math> D) <math>\sqrt{3}</math> E) <math>\sqrt{2}/2</math></p>
	<p>First draw a perpendicular from the x-axis to the point P. Lets call the point on the x-axis N. Now we have a right angle triangle PNO. We are given the co-ordinates of P as <math>(-\sqrt{3}, 1)</math>. i.e. <math>ON = \sqrt{3}</math> and <math>PN = 1</math>. Also we know angle <math>PNO = 90^\circ</math>. If you notice this is a <math>30^\circ - 60^\circ - 90^\circ</math> triangle with sides <math>1 - \sqrt{3} - 2</math> and angle <math>NOP = 30^\circ</math>.</p>

	<p>Similarly draw another perpendicular from the x-axis to point Q. Lets call the point on the x-axis R. Now we have a right angle triangle <math>\triangle QOR</math>. We know angle <math>QRO = 90^\circ</math>.</p> <p>Now  angle NOP + angle POQ (= <math>90^\circ</math> -- given) + angle QOR = <math>180^\circ</math></p> $\Rightarrow 30^\circ + 90^\circ + \text{angle } QOR = 180$ $\Rightarrow \text{angle } QOR = 60$ <p>If you notice <math>\triangle QOR</math> is also a <math>30^\circ - 60^\circ - 90^\circ</math> triangle with sides <math>1 - \sqrt{3} - 2</math> and angle <math>ORQ = 30^\circ</math></p> <p>The side opposite to this angle is OR = 1.</p> <p>Hence answer is B.</p> <p><a href="http://gmatclub.com/forum/plane-geometry-semicircle-from-gmatprep-85154-20.html">http://gmatclub.com/forum/plane-geometry-semicircle-from-gmatprep-85154-20.html</a></p>
66.	<p>GP. If the perimeter of square region S and the perimeter of rectangular region R are equal and the sides of R are in the ratio 2:3 then the ratio of the area of R to the area of S</p> <p>a. 25:16  b. 24:25  c. 5:6  d. 4:5  e. 4:9</p>
	<p>Let the Sides of R = <math>2x</math> and <math>3x</math>  Perimeter of R = <math>10x</math>  Now, let the S = <math>s</math>  so <math>4s = 10x</math>  <math>s = 2.5x</math>  <math>s^2 = 6.25x^2</math>  and area R = <math>2x * 3x = 6x^2</math>  So <math>6x^2 / 6.25x^2 = 24/25</math>  Ans. B.</p> <p><a href="http://gmatclub.com/forum/ratios-question-100594.html#p868860">http://gmatclub.com/forum/ratios-question-100594.html#p868860</a></p>
67.	<p>GP. A furniture dealer purchased a desk for \$150 and then set the selling price to the purchase price plus markup that was 40 percent of the selling price. If the dealer sold the desk at the selling price, what was the amount of the dealer's gross profit from the purchase and the sale of the desk?</p> <p>1) \$40  2) \$60  3) \$80</p>

	<p>4) \$90 5) \$100</p>
	<p>Purchase price = 150 Selling price = x</p> <p><math>150 + 0.4 * x = x</math> <math>0.6 * x = 150</math> <math>x = 250</math></p> <p>Profit = <math>250 - 150 = 100</math> <a href="http://gmatclub.com/forum/simple-but-still-having-trouble-71633.html">http://gmatclub.com/forum/simple-but-still-having-trouble-71633.html</a></p>
66.	<p>GP. A list of measurements in increasing order is 4,5,6,8,10 and x. If the median of these measurements is <math>\frac{6}{7}</math> times their arithmetic mean, what is the value of x?</p> <p>A. 16 B. 15 C. 14 D. 13 E. 12</p>
	<p><math>(4+5+6+8+10+x)/6 = 7 * 7/6</math> <math>33+x = 49</math> <math>x = 16</math></p>
67.	<p>GP. A company has two types of machines, type R and type S. Operating at a constant rate, a machine of type R does a certain job in 36 hours and a machine of type S does the same job in 18 hours. If the company used the same number of each type of machine to do the job in 2 hours, how many machines of type R were used?</p> <p>A. 3 B. 4 C. 6 D. 9 E. 12</p>
	<p>R does <math>\frac{1}{36}</math> the job S does <math>\frac{1}{18}</math> the job</p> <p><math>R+S = \frac{1}{12}</math> the job in one hour The both machine required 12 hours to complete the job</p> <p>In 12 hours 2 machine completed the job So in 2 hours the required machine = <math>(2*12)/2 = 12</math> machines Thus each <math>12/2 = 6</math> machine required to complete the job. So, 6 R machine required. Ans. C</p>



	<p>R does <math>\frac{1}{36}</math> the job</p> <p>S does <math>\frac{1}{18}</math> the job</p> <p><math>R+S = \frac{1}{12}</math> the job or 12 hours to do 1 job</p> <p>you want to do it in 2 hours....</p> <p>so you you'll <math>\frac{12}{2} = \{6 \text{ machines each.}\}</math>  <a href="http://www.beatthegmat.com/gmat-prep-t9449.html">http://www.beatthegmat.com/gmat-prep-t9449.html</a></p>
	<p>Machine R can do 1 job / 36hrs. S does 1 job / 18 hrs. We want the total to be 1 job / 2hrs</p> <p>So this is the equation where x represents the number of machines you need:</p> <p>rate of R + rate of S = rate of total  <math>\frac{x}{36} + \frac{x}{18} = \frac{1}{2}</math>  (multiply all by 36)  <math>x + 2x = 18</math>  <math>3x = 18</math>  <math>x = 6</math> machines  <a href="http://www.manhattangmat.com/forums/a-company-has-two-types-of-machines-type-r-and-type-s-t1684.html">http://www.manhattangmat.com/forums/a-company-has-two-types-of-machines-type-r-and-type-s-t1684.html</a></p>
68.	<p>GP. 38, 69, 22, 73, 31, 47, 13, 82</p> <p>Which of the following numbers is greater than three-fourths of the numbers but less than one-fourth of the numbers in the list above?</p> <p>(A) 56  (B) 68  (C) 69  (D) 71  (E) 73</p>
	<p>arrange # in ascending order,  13,22,31,38,47,69,73,82  <math>\frac{3}{4}</math> of the list is 6 numbers(13,22,31,38,47,69)  <math>\frac{1}{4}</math> of the list is 2 numbers(73,82)  so select a number in between those limits.  <math>\# &gt; 69</math> and <math>&lt; 73</math>  Thus 70, 71, 72 [Only 71 is given in the options.]  so D</p>

69.

1	2	3	4	5	6	7
-2	-4	-6	-8	-10	-12	-14
3	6	9	12	15	18	21
-4	-8	-12	-16	-20	-24	-28
5	10	15	20	25	30	35
-6	-12	-18	-24	-30	-36	-42
7	14	21	28	35	42	49

GP. What is the sum of the integers in the table above?

- (A) 28  
 (B) 112  
 (C) 336  
 (D) 448  
 (E) 784

Sum of each column is 4 times the number in the first cell

$$\text{Total sum} = 4(1+2+3+4+5+6+7) = 4 \times 28 = 112$$

Ans: B

<http://www.urch.com/forums/gmat-problem-solving/88102-sum-integers-table.html>

<http://gmatclub.com/forum/sum-of-table-111988.html> [well discussed]

70.

GP. If  $a, b, k$ , and  $m$  are positive integers, is  $a^k$  a factor of  $b^m$ ?

1)  $a$  is a factor of  $b$

2)  $k \leq m$

we need to find out if  $\frac{b^m}{a^k}$  is an integer.

Statement 1 says  $a$  is a factor of  $b$  so  $b = na$  where  $n$  is an integer.

$$\text{So } \frac{b^m}{a^k} = \frac{(na)^m}{a^k} = \frac{n^m \cdot a^m}{a^k}$$

This will be integer if  $a^m \geq a^k$  which will happen only if  $k \leq m$  which is not given in statement 1, so insufficient

Statement 2 doesn't say anything about  $a$  and  $b$  so insufficient

Combining statement 1 and 2 we can answer the question in affirmative, hence sufficient and

Answer is C.  
<http://gmatchclub.com/forum/factor-112051.html>

Take  $b=6$ ,  $a=2$

1 - insufficient.  
 Take  $b = 6$ ,  $a = 2$ . we know  $a$  is a factor of  $b$ . But  $a^2$  is not a factor of  $b$ .  
 Take  $b = 8$ ,  $a = 2$ , we know  $a$  is a factor of  $b$ . And  $a^2$ ,  $a^3$  are factors of  $b$ .

2 - insufficient. Without knowing relationship between  $a$  and  $b$ , we cannot say for sure

1 and 2 together - sufficient.

71

q	q	q	q
q	r	s	t
q	u	v	w
q	x	y	z

GP. In the table above, Is  $Z=20q$  ?  
 (1)  $q=3$ .  
 (2) Each value other than  $q$  is equal to the sum of the value immediately above it in the table and the value immediately to the left in the table.

Statement 1) Insufficient. As with just 1 value and no rule given to determine the other values(how they are related or how the values are derived) we cannot answer it.

Statement 2) Sufficient:  
 Read the rule what it states:

By that rule ;

$r=q+q= 2q$   
 $u=q+r= 3q$  ( as we have found the value of  $r$  already as above. Similarly follow suit for others)  
 $x=q+u= 4q$   
 $s=q+r=3q$   
 $v=s+u=7q$   
 $y=v+x=12q$   
 $t=q+s=4q$   
 $w=q+v=8q$   
 finally  **$Z=w+y=20q$**

Hence B sufficient.

72. GP. Tim bought 2 kinds of candy bars, choco and vanilla, that came in package of 2 bars each. Tim handed out  $\frac{2}{3}$  of choco and  $\frac{3}{5}$  of vanilla. How many packages did Tim bought?

	<p>(1) Tim bought 1 fewer package of choco than vanilla,  (2) Tim handed out the same no. of each kind of candy bar.</p>
	<p>2bars= 1 packet.  Let the number of packets be bought (1) Choco= x packets (2) Toffee= y packets  Tim Handed out : <math>\frac{2}{3} * x</math> AND <math>\frac{3}{5} * y</math>  We need to find what are x and y values?</p> <p>St.1  1 fewer choco pack i.e choco packs <math>x = (y-1)</math>  No other info. Insufficient</p> <p>St.2  No. of x packets = No. of y packets. (No info abt x and/or y)  Insufficient</p> <p>St1 &amp; St 2 Together:</p> <p>(1) <math>x=(y-1)</math>  (2) handed out same number of each kind of candy bar and it is given he handed out <math>\frac{2}{3}</math> of choco &amp; <math>\frac{3}{5}</math> of vanilla.  Therefore <math>\frac{2}{3} x = \frac{3}{5} y</math>  <math>\frac{2}{3} (y-1) = \frac{3}{5} y</math>  Solving we get <math>y=10</math> (packets) &amp; <math>x = y-1=9</math> packets.</p> <p>Hence sufficient. Ans. C  <a href="http://gmatclub.com/forum/questions-2-from-paractice-test-gmatprep-56884.html">http://gmatclub.com/forum/questions-2-from-paractice-test-gmatprep-56884.html</a></p>
73.	<p>GP. For which of the following functions is <math>f(a+b) = F(a) + f(b)</math> for all positive numbers a and b?</p> <p>(A) <math>f(x) = X^2</math></p> <p>(B) <math>f(x) = X+1</math></p> <p>(C) <math>f(x) = \sqrt{x}</math></p> <p>(D) <math>F(x) = 2/x</math></p> <p>(E) <math>F(x) = -3x^*</math></p>
	<p>we want <math>f(a+b) = F(a) + f(b)</math>. let's look at each option:</p> <p>1. <math>f(x) = X^2</math> : <math>F(a) = a^2</math>; <math>f(b) = b^2</math> and <math>f(a+b) = (a+b)^2</math>; clearly <math>(a+b)^2</math> will not equal <math>a^2 + b^2</math>.</p> <p>2. <math>f(a) = a+1</math>; <math>f(b) = b+1</math> so, <math>f(a+b) = a+b+1</math> which does not equal <math>Fa + Fb</math>, which is <math>a+b +2</math>.</p> <p>3 <math>f(a) =</math> square root of a; <math>f(b)=</math> square root of b and <math>f(a+b)=\text{SQRT}[a+b]</math>. here also, the equality</p>

	<p>doesn't hold [ u get it, right?]</p> <p>4. <math>F(a+b) = 2/a</math>; <math>F(b) = 2/b</math>. so, <math>F(a+b) = 2/(a+b)</math>. Now, does <math>2/a + 2/b = 2/(a+b)</math> - Nope!</p> <p>5. <math>F(a) = -3a</math>; <math>F(b) = -3b</math>; so, <math>F(a+b) = -3(a+b)</math>. Now, <math>-3a-3b = -3(a+b) = F(a+b)</math> - GOOD.</p> <p>Ans. E</p>
74.	<p>GP. If <math>XYZ &gt; 0</math> is <math>X &gt; 0</math></p> <p>1) <math>XY &gt; 0</math> 2) <math>XZ &gt; 0</math></p>
	<p>1) x and y both are positive or negative, so x could be -ve, or +ve insuff. 2) x and z both are positive or negative, so x could be -ve, or +ve insuff.</p> <p>For C as <math>xyz &gt; 0</math>, so if y and z both -ve, then x has to be +ve, and if y and z become +ve then x has to be +ve to become <math>xyz &gt; 0</math>.</p>
75.	<p>GP. If <math>M = \sqrt{4} + \sqrt[3]{4} + \sqrt[4]{4}</math>, then the value of M is:</p> <p>A. less than 3 B. equal to 3 C. between 3 and 4 D. equal to 4 E. greater than 4</p>
	<p>Here is a little trick: any positive integer root from a number more than 1 will be more than 1.</p> <p>For instance: <math>\sqrt[1000]{2} &gt; 1</math>.</p> <p>Hence <math>\sqrt[3]{4} &gt; 1</math> and <math>\sqrt[4]{4} &gt; 1 \rightarrow</math>  <math>M = \sqrt{4} + \sqrt[3]{4} + \sqrt[4]{4} = 2 + (\text{number more than 1}) + (\text{number more than 1}) &gt; 4</math></p> <p>Answer: E.</p>
76.	<p>GP. A certain company employs 6 senior officers and 4 junior officers. If a committee is to be created, that is made up of 3 senior officers and 1 junior officer, how many different committee are possible?</p> <p>a- 8 b-24 c- 58 d-80 e-210</p>
	<p><math>6C3 \times 4C1 = 80</math></p>
77.	<p>GP. Rates for having a manuscript typed at a certain typing service are \$5 per page for the first time a page is typed and \$3 per page each time a page is revised. If a certain manuscript has 100 pages, of which 40 were revised only once, 10 were revised twice, and the rest required no</p>

	<p>revisions, what was the total cost of having the manuscript typed?</p> <p>A. \$430 B. \$620 C. \$650 D. \$680 E. \$770</p>
	<p><math>100*5 + 40*3 + 10*2*3</math> [<math>100*5 + 40*3 + 10*3 + 10*3</math>] =680 Is D the answer</p>
79	<p>GP. 40,45,45,50,50,60,70,75,95,100 The scores on a certain history test are shown above. how many scores were greater than the medium score and less than the mean score. (A) 0 (B) 1 (C) 2 (D) 4 (E) 5</p>
	<p>Mean = <math>(40+45+45+50+50+60+70+75+95+100)/10 = 630/10 = 63</math>  Median = <math>(n+1)\text{th term} = (10+1)\text{th term} = 5.5\text{th term} = (5\text{th term} + 6\text{th term})/2 = (50+60)/2 = 55</math>  so, score(s) greater than the median score and smaller than the mean score is(are) only 60. therefore, 1. Ans. B</p>
80.	<p>GP. Of the 800 sweaters in a certain store, 150 are red. How many of the red sweaters at the store are made of pure wool?</p> <p>1) 320 of the sweaters at the store are neither red nor made of pool wool 2) 100 of the red sweaters at the store are not made of pure wool</p>
	<p><math>800 = \text{Only Red} + \text{Only Pure Wool} + \text{Both} + \text{neither}</math>  only red + both = 150  From (1)  Only Pure Wool = <math>800 - 150 - 320 = 800 - 470 = 330</math>  But "Both" is still not there.  So (1) is insufficient</p>

	<p>(2) says</p> <p>Only Red + both = 150</p> <p>So both = 50</p> <p>Ans. B.</p> <p><a href="http://gmatclub.com/forum/ds-sets-75446.html#p908388">http://gmatclub.com/forum/ds-sets-75446.html#p908388</a></p>
81	<p>GP. A combined of 55 light bulbs are stored in two boxes; of these, a total of 7 are broken. If there are exactly two broken bulbs in the first box, what is the number of bulbs in the second box that are not broken?</p> <p>(1) In the first box, the number of bulbs that are not broken is 15 times the number of the broken bulbs.</p> <p>(2) The total number of bulbs in the first box is 9 more than the total number of bulbs in the second box.</p> <p>Ans. D. [Easy]</p>
82.	<p>GP. Alice's take-home pay last year was the same each month, and she saved the same fraction of her take home pay each month. The total amount she had saved at the end of the year was three times the amount of that portion of her monthly take home pay that she did NOT save. If all the money that she saved last year was from her take-home pay, what fraction of her take home pay did she save each month?</p> <p>a) <math>\frac{1}{2}</math>  b) <math>\frac{1}{3}</math>  c) <math>\frac{1}{4}</math>  d) <math>\frac{1}{5}</math>  e) <math>\frac{1}{6}</math></p>
	<p>Is it problem if I don't assume monthly payment [as saving is said in fraction so payment is one] such as:  saving is x fraction  so, total saving of the year <math>12x</math>  according to the condition <math>12x = 3(1-x)</math>  <math>12x = 3-3x</math>  <math>12x+3x= 3</math>  <math>15x = 3</math>  <math>x = 3/15 = 1/5</math> or D ans.</p> <p><a href="http://gmatclub.com/forum/alice-s-take-home-pay-confusing-words-88218.html">http://gmatclub.com/forum/alice-s-take-home-pay-confusing-words-88218.html</a></p>

	<p>Monthly income = <math>x</math>  monthly saving = <math>nx</math> (<math>n</math> is the fraction)</p> <p>Total yearly saving = <math>12nx</math>  part of saving which is not saved in a month = <math>x - nx</math></p> <p>so <math>12nx = 3(x - nx)</math>  <math>\Rightarrow n = 1/5</math></p> <p><math>\% = 1/5 * x/x * 100 = 20\%</math></p>
83.	<p>GP. An integer greater than 1 that is not prime is called composite. If the two-digit integer <math>n</math> is greater than 20, is <math>n</math> composite?</p> <p>(1) The tens digit of <math>n</math> is a factor of the units digit of <math>n</math>.  (2) The tens digit of <math>n</math> is 2</p>
	<p>Ans. A.</p> <p>Stat 1:  If the units digit is not 1 (which it isn't since <math>n &gt; 20</math>) and the units digit is divisible by the ten's digit, then <math>n</math> is not prime. Suff.</p> <p>Stat 2:  22 not prime but 29 prime. Insuff.</p>
84.	<p>GP. During a one-day sale, a store sold each sweater of a certain type for \$30 more than the store's cost to purchase each sweater. How many of these sweaters were sold during the sale?</p> <p>1. During the sale, the total revenue from the sweater of these sweaters was \$270.  2. During the Sale, the store sold each of these sweaters at a price that was 50% greater than the store's cost to purchase each sweater.</p>
	<p>Given: <math>S = C + 30</math> [<math>S</math> = Sales, <math>c</math> = cost]</p> <p>(1) <math>NS=270</math> [<math>N</math> = number of sales]  So, <math>(c + 30) \times N = 270</math>, <math>N</math> is unknown, Insufficient.</p> <p>(2) <math>c+30 = 150\%c</math>, <math>C</math> can be calculated from the equation, but we need <math>N=?</math> Insufficient.  <math>C = 60</math>  Considering <math>C</math>  <math>(60+30) \times N = 270</math>  <math>N = 3</math></p> <p>Answer: C.  <a href="http://gmatclub.com/forum/ds-sweaters-59448.html">http://gmatclub.com/forum/ds-sweaters-59448.html</a></p>
85.	<p>GP. For each month of next year, Company R's monthly revenue target is <math>x</math> dollars greater than its monthly target for the preceding month. What is Company R's revenue target for March of</p>



	<p>next year?</p> <p>1 Co R's revenue target for December of next year is \$310,000.</p> <p>(2) Co R's revenue target for September of next year is \$30,000 greater than its revenue target for June of next year.</p>
	<p>Statement 1: This statement does not give us any idea of what is x dollars. Insufficient.</p> <p>Statement 2: We can find x dollars from the 30,000, If we know the revenue for June. We do not have any revenue mentioned.</p> <p>Lets revenue for June = x Then July = x+x, Aug =xy+x+x, Sep = x+x+x+x. So <math>4x = 30,000 \implies x = 10000</math></p> <p>Insufficient.</p> <p>Together: We have the revenue for december 310000. And x dollars is 10,000. To get the revenue for March we need to subtract 9X from december revenue.</p> <p>Ans. C <a href="http://gmatclub.com/forum/seminar-prime-numbers-revenue-91170.html">http://gmatclub.com/forum/seminar-prime-numbers-revenue-91170.html</a></p>
86.	<p>GP. If x and y are integers, what is the value of x+y?</p> <p>1) <math>690 &lt; x &lt; y &lt; 696</math> 2) <math>692 &lt; x &lt; y &lt; 695</math></p>
	<p>1) x can be 691,692,693,694 y can be 692,693,694,695 Not Sufficient.</p> <p>2) x=693 y=694 x+y=1387 Sufficient.</p> <p>Ans: "B"</p>
87.	<p>If <math>3^a 4^b = c</math>, what is the value of b?</p> <p>(1) <math>5^a = 25</math> (2) <math>c = 36</math></p> <p>IS OA CORRECT!!</p>

	<p>i will go by B, what do you say</p> <p>If you are wondering why stmt 2 alone is not sufficient, think of it this way:</p> $3^a 4^b = c$ <p>(2) <math>c = 36</math></p> <p>So</p> $3^a 4^b = 36$ <p>Now for every value of a, there is a different value of b.  Say, <math>a = 1</math>, then <math>4^b = 12</math> and <math>b = 1.79</math> approx  <math>a = 2</math>, then <math>4^b = 4</math> and <math>b = 1</math>  <math>a = 3</math>, then <math>4^b = 36/27</math> and <math>b = 0.2</math> approx  and so on...</p> <p>Ans. C</p> <p>If we were given that a and b are integers, then answer would have been (B)  <a href="http://gmatclub.com/forum/number-properties-112217.html#p915902">http://gmatclub.com/forum/number-properties-112217.html#p915902</a></p>
88.	<p>What is the range of a set consisting of the first 100 multiples of 7 that are greater than 70?</p> <p>A.693  B.700  C.707  D.777  E.847</p>
	<p>In an arithmetic progression</p> $A_n = A_1 + (n-1)*d$ <p>{77,84,91,98,.....}</p> <p><math>A_1 = \text{First term} = 77</math>  <math>d = \text{Common Difference} = 7</math></p> <p><math>A_{100} = A_1 + (n-1)*d</math>  <math>A_{100} = 77 + (100-1)*7</math>  <math>A_{100} = 77 + 99*7</math>  <math>A_{100} - A_1 = 77 + 99*7 - 77 = 99*7</math>  <a href="http://gmatclub.com/forum/range-111394.html#p909164">http://gmatclub.com/forum/range-111394.html#p909164</a></p>
89.	<p>At a certain bookstore, each notepad costs x dollars and each markers costs y dollars. If \$10 is enough to buy 5 notepads and 3 markers, is \$10 enough to buy 4 notepads and 4 markers instead?</p> <p>1). each notepad cost less than \$1</p> <p>2). \$10 is enough to buy 11 notepads</p>

	<p>We are given that <math>5x + 3y</math> is less than or equal to 10</p> <p>Note that <math>4x + 4y &lt; 5x + 3y</math> if and only if <math>y &lt; x</math></p> <p>Thus if <math>y &lt; x</math>, the answer is yes. If <math>y &gt; x</math>, we need more info.</p> <p>No means of comparing <math>x</math> and <math>y</math> are provided.</p> <p>Therefore, E</p>
90.	<p>if <math>x</math> is an integer, is <math>(x^2 + 1)(x + 5)</math> an even number?</p> <p>(1) <math>x</math> is an odd number (2) each prime factor of <math>x^2</math> is greater than 7</p>
	<p>If <math>x</math> is odd, <math>(x+5)</math> is even. Hence <math>(x^2 + 1)(x + 5)</math> is an even number.</p> <p>(2)</p> <p>If <math>x^2</math> has each prime factor greater than 7, <math>x^2</math> is odd, and then <math>x</math> is odd too. (<math>x^2</math> does not have 2 as factor)</p> <p>By same reasoning as above, <math>(x^2 + 1)(x + 5)</math> is an even number.</p> <p>Answer – D</p>
91.	<p>A certain jar contains only <math>b</math> black marbles, <math>w</math> white marbles, and <math>r</math> red marbles. If one marble is to be chosen at random from the jar, is the probability that the marble chosen will be red greater than the probability that the marble chosen will be white?</p> <p>1) <math>r / (b+w) &gt; w / (b+r)</math> 2) <math>b-w &gt; r</math></p>
	<p>We have to find out: <math>[r/(b+w+r)] &gt; [w/(b+w+r)]</math> so, <math>r &gt; w</math> From 1) <math>(b+w) &gt; w / (b+r)</math> it is possible only when <math>r &gt; W</math> Thus (1) Sufficient. 2) value of <math>b</math> is unknown Ans. A</p>
	<p>Simplify the question: are there more red marbles or white marbles?</p> <p>1. boils down to <math>r/w &gt; w/r</math> (since <math>b</math> is found in both denominators) telling us there are more red marbles than white marbles.</p> <p>SUFFICIENT</p> <p>2. <math>b-w &gt; r</math> tells us there are more black than white, but that's all. Doesn't tell us anything about the relationship between red and white.</p>

	<p>INSUFFICIENT</p> <p>Answer A</p> <p><a href="http://gmatclub.com/forum/ds-probability-57615.html">http://gmatclub.com/forum/ds-probability-57615.html</a></p>
92.	<p>what is the hundred digit of decimal <math>z</math>?</p> <p>a) the tenth digit of <math>100z</math> is 2</p> <p>b) the unit digit of <math>1000z</math> is 2</p>
	<p>Let's say <math>z = a.bcd</math>. Hundredths digit would be the value of <math>c</math>. So the question is <math>c = ?</math></p> <p>(1) The tenths digit is 100<math>z</math> is 2 --&gt; <math>100z = 100 * a.bcd = abc.d</math> --&gt; tenths digit of 100<math>z</math> is the value of <math>d</math>. So <math>d = 2</math>. Not sufficient to calculate <math>c</math>.</p> <p>(2) The units digit of 1,000<math>z</math> is 2 --&gt; <math>1000z = 1000 * a.bcd = abcd</math> --&gt; units digit of 1000<math>z</math> is the value of <math>d</math>. So <math>d = 2</math>. Not sufficient to calculate <math>c</math>.</p> <p>(1)+(2) No new info, only the value of <math>d</math> is known. Not sufficient.</p> <p>Ans. E</p>
93.	<p>If <math>n</math> is a positive integer and <math>r</math> is remainder, when <math>(n-1)(n+1)</math> is divided by 24 what is value of <math>r</math>?</p> <p>1) <math>n</math> is not divisible by 2</p> <p>2) <math>n</math> is not divisible by 3</p>
	<p><b>If <math>n</math> is a positive integer and <math>r</math> is the remainder when <math>(n-1)(n+1)</math> is divided by 24, what is the value of <math>r</math>?</b></p> <p><b>Number plugging method:</b></p> <p><math>(n-1)(n+1) = n^2 - 1</math></p> <p>(1) <math>n</math> is not divisible by 2 --&gt; pick two odd numbers: let's say 1 and 3 --&gt; if <math>n = 1</math>, then <math>n^2 - 1 = 0</math> and as zero is divisible by 24 (zero is divisible by any integer except zero itself) so remainder is 0 but if <math>n = 3</math>, then <math>n^2 - 1 = 8</math> and 8 divided by 24 yields remainder of 8. Two different answers, hence not sufficient.</p> <p>(2) <math>n</math> is not divisible by 3 --&gt; pick two numbers which are not divisible by 3: let's say 1 and 2 --&gt; if <math>n = 1</math>, then <math>n^2 - 1 = 0</math>, so remainder is 0 but if <math>n = 2</math>, then <math>n^2 - 1 = 3</math> and 3 divided by 24 yields remainder of 3. Two different answers, hence not sufficient.</p> <p>(1)+(2) Let's check for several numbers which are not divisible by 2 or 3:</p> <p><math>n = 1</math> --&gt; <math>n^2 - 1 = 0</math> --&gt; remainder 0;</p> <p><math>n = 5</math> --&gt; <math>n^2 - 1 = 24</math> --&gt; remainder 0;</p> <p><math>n = 7</math> --&gt; <math>n^2 - 1 = 48</math> --&gt; remainder 0;</p> <p><math>n = 11</math> --&gt; <math>n^2 - 1 = 120</math> --&gt; remainder 0.</p>

	Well it seems that all appropriate numbers will give remainder of 0. Sufficient.  <a href="http://gmatclub.com/forum/gmatprep-good-one-62849.html">http://gmatclub.com/forum/gmatprep-good-one-62849.html</a>
93.	What is the greatest prime factor of $4^{17} - 2^{28}$ ?  A) 2 B) 3 C) 5 D) 7 E) 11
	Sol: $4^{17} - 2^{28} = (2^2)^{17} - 2^{28} = 2^{34} - 2^{28} = 2^{28} \cdot 2^6 - 2^{28} = 2^{28}(2^6 - 1) = 2^{28} \cdot 63 = 2^{28} \cdot 3^2 \cdot 7$ <p>The prime factors of the number are 2,3,7 of which 7 is the greatest.</p> <p>Ans: "D"</p>