

## NEW PS QUESTIONS FROM OG 2017

### PAGE 150, Q2

On a vacation, Rose exchanged \$500.00 for euros at an exchange rate of 0.80 euro per dollar and spent  $\frac{3}{4}$  of the euros she received. If she exchanged the remaining euros for dollars at an exchange rate of \$1.20 per euro, what was the dollar amount she received?

- A) \$60.00    B) \$80.00    C) \$100.00    D) \$120.00    E) \$140.00

### PAGE 150, Q5

When traveling at a constant speed of 32 miles per hour, a certain motorboat consumes 24 gallons of fuel per hour. What is the fuel consumption of this boat at this speed measured in miles traveled per gallon of fuel?

- A)  $\frac{2}{3}$     B)  $\frac{3}{4}$     C)  $\frac{4}{5}$     D)  $\frac{4}{3}$     E)  $\frac{3}{2}$

### PAGE 151, Q7

A technician makes a round-trip to and from a certain service center by the same route. If the technician completes the drive to the center and then completes 10 percent of the drive from the center, what percent of the round-trip has the technician completed?

- A) 5%    B) 10%    C) 25%    D) 40%    E) 55%

### PAGE 151, Q13

A collection of 16 coins, each with a face value of either 10 cents or 25 cents, has a total face value of \$2.35. How many of the coins have a face value of 25 cents?

- A) 3    B) 5    C) 7    D) 9    E) 11

### PAGE 152, Q19

Thabo owns exactly 140 books, and each book is either paperback fiction, paperback nonfiction, or hardcover nonfiction. If he owns 20 more paperback nonfiction books than hardcover nonfiction books, and twice as many paperback fiction books as paperback nonfiction books, how many hardcover books nonfiction books does Thabo own?

- A) 10    B) 20    C) 30    D) 40    E) 50

**PAGE 153, Q23**

Makoto, Nishi, and Ozuro were paid a total of \$780 for waxing the floors at their school. Each was paid in proportion to the number of hours he or she worked. If Makoto worked 15 hours, Nishi worked 20 hours, and Ozuro worked 30 hours, how much was Makoto paid?

- A) \$52                      B) \$117                      C) \$130                      D) \$180                      E) \$234

**PAGE 154, Q32**

City X has a population 4 times as great as the population of City Y, which has a population twice as great as the population of City Z. What is the ratio of the population of City X to the population of City Z?

- A) 1:8                      B) 1:4                      C) 2:1                      D) 4:1                      E) 8:1

**PAGE 156, Q 44**

A total of  $s$  oranges are to be packaged in boxes that will hold  $r$  oranges each, with no oranges left over. When  $n$  of these boxes have been completely filled, what is the number of boxes that remain to be filled?

- A)  $s - nr$                       B)  $s - (n/r)$                       C)  $rs - n$                       D)  $(s/n) - r$                       E)  $(s/r) - n$

**PAGE 156, Q 45**

If  $0 < a < b < c$ , which of the following statements must be true?

- I.  $2a > b + c$   
II.  $c - a > b - a$   
III.  $c/a < b/a$

- A) I only                      B) II only                      C) III only                      D) I and II                      E) II and III

**PAGE 156, Q 47**

	Monday	Tuesday	Wednesday	Thursday
Company A	45	55	50	50
Company B	10	30	30	10
Company C	34	28	28	30
Company D	39	42	41	38
Company E	50	60	60	70

The table above shows the number of packages shipped daily by each of the five companies during a 4-day period. The standard deviation of the numbers of packages shipped daily during the period was greatest for which of the five companies?

- A) A      B) B      C) C      D) D      E) E

**PAGE 157, Q 50**

When  $n$  liters of fuel were added to a tank that was already  $\frac{1}{3}$  full, the tank was filled to  $\frac{7}{9}$  of its capacity. In terms of  $n$ , what is the capacity of the tank, in liters?

- A)  $10n/9$     B)  $4n/3$     C)  $3n/2$     D)  $9n/4$     E)  $7n/3$

**PAGE 157, Q 53**

The harvest yield from a certain apple orchard was 350 bushels of apples. If  $x$  of the trees in the orchard each yielded 10 bushel of apples, what fraction of the harvest yield was from these  $x$  trees?

- A)  $x/35$     B)  $1 - (x/35)$     C)  $10x$     D)  $35 - x$     E)  $350 - 10x$

**PAGE 158, Q 62**

If  $x$  and  $y$  are positive integers such that  $y$  is a multiple of 5 and  $3x + 4y = 200$ , then  $x$  must be a multiple of which of the following?

- A) 3      B) 6      C) 7      D) 8      E) 10

**PAGE 159, Q 68**

In western Europe,  $x$  bicycles were sold in each of the years 1990 and 1993. The bicycle producers of Western Europe had a 42 percent share of this market in 1990 and a 33 percent share in 1993. Which of the following represents the decrease in the annual number of bicycles produced and sold in Western Europe from 1990 to 1993?

- A) 9% of  $(x/100)$       B) 14% of  $(x/100)$       C) 75% of  $(x/100)$   
D) 9% of  $x$               E) 14% of  $x$

**PAGE 159, Q 69**

Which of the following fractions is closest to  $1/2$ ?

- A)  $4/7$       B)  $5/9$       C)  $6/11$       D)  $7/13$       E)  $9/16$

**PAGE 160, Q 70**

If  $p \neq 0$  and  $p - \{(1 - p^2)/p\} = r/p$ , then  $r =$

- A)  $p + 1$       B)  $2p - 1$       C)  $p^2 + 1$       D)  $2p^2 - 1$       E)  $p^2 + p - 1$

**PAGE 160, Q 71**

If the range of the six numbers 4, 3, 14, 7, 10 and  $x$  is 12, what is the difference between the greatest possible value of  $x$  and the least possible value of  $x$ ?

- A) 0      B) 2      C) 12      D) 13      E) 15

**PAGE 160, Q 72**

A doctor prescribed 18 cubic centimeters of a certain drug to a patient whose body weight was 120 pounds. If the typical dosage is 2 cubic centimeters per 15 pounds of the body weight, by what percent was the prescribed dosage greater than the typical dosage?

- A) 8%      B) 9%      C) 11%      D) 12.5%  
E) 14.8%

**PAGE 162, Q 88**

The average (arithmetic mean) score on a test taken by 10 students was  $x$ . If the average score for 5 of the students was 8, what was the average score, in terms of  $x$ , for the remaining 5 students who took the test?

- A)  $2x - 8$       B)  $x - 4$       C)  $8 - 2x$       D)  $16 - x$       E)  $8 - (2/x)$

**PAGE 162, Q 89**

If  $mn \neq 0$  and 25 percent of  $n$  equals  $37(1/2)$  percent of  $m$ , what is the value of  $12n/m$ ?

- A) 18      B)  $32/3$       C) 8      D) 3      E)  $9/8$

**PAGE 163, Q 91**

Last year Joe grew 1 inch and Sally grew 200 percent more than Joe grew. How many inches did Sally grow last year?

- A) 0            B) 1            C) 2            D) 3            E) 4

**PAGE 163, Q 96**

Three printing presses, R, S, and T, working together at their respective constant rates, can do a certain printing job in 4 hours. S and T, working together at their respective constant rates, can do the same job in 5 hours. How many hours would it take R, working alone at its constant rate, to do the same job?

- A) 8            B) 10            C) 12            D) 15            E) 20

**PAGE 164, Q 100**

Mark and Ann together were allocated  $n$  boxes of cookies to sell for a club project. Mark sold 10 boxes less than  $n$  and Ann sold 2 boxes less than  $n$ . If Mark and Ann have each sold at least one box of cookies, but together they have sold less than  $n$  boxes, what is the value of  $n$ ?

- A) 11            B) 12            C) 13            D) 14            E) 15

**PAGE 165, Q 109**

The product of two negative numbers is 160. If the lesser of the two numbers is 4 less than twice the greater, what is the greater number?

- A) -20            B) -16            C) -10            D) -8            E) -4

**PAGE 167, Q 116**

	Number of Marbles in Each of Three Bags	Percent of Marbles in Each Bag That are Blue (to the nearest tenth)
Bag P	37	10.8%
Bag Q	X	66.7%
Bag R	32	50.0%

If  $\frac{1}{3}$  of the total number of marbles in the three bags listed in the table above are blue, how many marbles are there in bag Q?

- A) 5            B) 9            C) 12            D) 23            E) 46

**PAGE 167, Q 120**

Age Category (in years)	Number of Employees
Less than 20	29
20 - 29	58
30 - 39	36
40 - 49	21
50 - 59	10
60 - 69	5
70 and over	2

The table above gives the age categories of the 161 employees at Company X and the number of employees in each category. According to the table, if  $m$  is the median age, in years, of the employees at Company X, then  $m$  must satisfy which of the following?

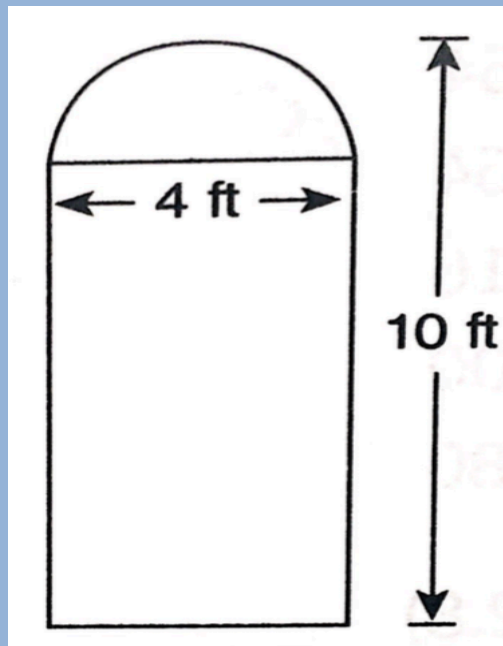
- A)  $20 \leq m \leq 29$       B)  $25 \leq m \leq 34$       C)  $30 \leq m \leq 39$   
 D)  $35 \leq m \leq 44$       E)  $40 \leq m \leq 49$

**PAGE 168, Q 123**

The probability that event M will not occur is 0.8 and the probability that event R will not occur is 0.6. If events M and R cannot both occur, which of the following is the probability that either event M or event R will occur?

- A)  $1/5$       B)  $2/5$       C)  $3/5$       D)  $4/5$       E)  $12/25$

**PAGE 168, Q 127**



The window in the figure above consists of a rectangle and a semicircle with dimensions as shown. What is the area, in square feet, of the window?

- A)  $40 + 8\pi$     B)  $40 + 2\pi$     C)  $32 + 8\pi$     D)  $32 + 4\pi$     E)  $32 + 2\pi$

**PAGE 169, Q128**

If there are fewer than 8 zeroes between the decimal point and the first nonzero digit in the decimal expansion of  $(t/1000)^4$ , which of the following numbers could be the value of  $t$ ?

- I. 3
- II. 5
- III. 9

A) None      B) I only      C) II only      D) III only      E) II and III

**PAGE 169, Q 132**

Last year 26 members of a certain club traveled to England, 26 members traveled to France, and 32 members traveled to Italy. Last year no members of the club traveled to both England and France, 6 members traveled to both England and Italy, and 11 members traveled to both France and Italy. How many members of the club traveled to at least one of these three countries last year?

A) 52      B) 67      C) 71      D) 73      E) 79

**PAGE 170, Q 140**

A certain experimental mathematics program was tried out in 2 classes in each of 32 elementary schools and involved 37 teachers. Each of the classes had 1 teacher and each of the teachers taught at least 1, but not more than 3, of the classes. If the number of teachers who taught 3 classes is  $n$ , then the least and greatest possible values of  $n$ , respectively, are

A) 0 and 13    B) 0 and 14    C) 1 and 10    D) 1 and 9    E) 2 and 8

**PAGE 172, Q 152**

Which of the following equations has  $1 + \sqrt{2}$  as one of its roots?

- A)  $x^2 + 2x - 1 = 0$     B)  $x^2 - 2x + 1 = 0$     C)  $x^2 + 2x + 1 = 0$     D)  $x^2 - 2x - 1 = 0$   
E)  $x^2 - x - 1 = 0$

**PAGE 179, Q 194**

On Saturday morning, Malachi will begin a camping vacation and he will return home at the end of the first day on which it rains. If one of the first three days of the vacation the probability of rain on each day is 0.2, what is the probability that Malachi will return home at the end of the day on the following Monday?

A) 0.008      B) 0.128      C) 0.488      D) 0.512      E) 0.640

**PAGE 180, Q 201**

A sequence of numbers  $a_1, a_2, a_3, \dots$  is defined as follows:  $a_1 = 3$ ,  $a_2 = 5$ , and every term in the sequence after  $a_2$  is the product of all terms in the sequence preceding it, e.g,  $a_3 = (a_1)(a_2)$  and  $a_4 = (a_1)(a_2)(a_3)$ . If  $a_n = t$  and  $n > 2$ , what is the value of  $a_{n+2}$  in terms of  $t$ ?

- A)  $4t$       B)  $t^2$       C)  $t^3$       D)  $t^4$       E)  $t^8$

**PAGE 181, Q 209**

The letters D, G, I, I, and T can be used to form 5-letter strings as DIGIT or DGIIT. Using these letters, how many 5-letter strings can be formed in which the two occurrences of the letter I are separated by at least one other letter?

- A) 12      B) 18      C) 24      D) 36      E) 48