

1. A password on Mr. Wallace's briefcase consists of 5 digits. What is the probability that the password contains exactly three digit 6?

- A. $860/90,000$
- B. $810/100,000$
- C. $858/100,000$
- D. $860/100,000$
- E. $1530/100,000$

Solution: baker-s-dozen-128782-20.html#p1057502

2. If $y = \frac{(3^5 - 3^2)^2}{(5^7 - 5^4)^{-2}}$, then y is NOT divisible by which of the following?

- A. 6^4
- B. 62^2
- C. 65^2
- D. 15^4
- E. 52^4

Solution: baker-s-dozen-128782-20.html#p1057503

3. For the past k days the average (arithmetic mean) cupcakes per day that Liv baked was 55. Today Bibi joined and together with Liv they baked 100 cupcakes, which raises the average to 60 cupcakes per day. What is the value of k?

- A. 6
- B. 8
- C. 9
- D. 10
- E. 12

Solution: baker-s-dozen-128782-20.html#p1057504

4. What is the smallest positive integer k such that $126\sqrt{k}$ is the square of a positive integer?

- A. 14
- B. 36
- C. 144
- D. 196
- E. 441

Solution: baker-s-dozen-128782-20.html#p1057505

5. There are 7 red and 5 blue marbles in a jar. In how many ways 8 marbles can be selected from the jar so that at least one red marble and at least one blue marble to remain in the jar?

- A. 460
- B. 490
- C. 493
- D. 455
- E. 445

Solution: baker-s-dozen-128782-20.html#p1057507

6. A pool has two water pumps A and B and one drain C. Pump A alone can fill the whole pool in x hours, and pump B alone can fill the whole pool in y hours. The drain can empty the whole pool in z hours, where $z > x$. With pumps A and B both running and the drain C unstopped till the pool is filled, which of the following represents the amount of water in terms of the fraction of the pool which pump A pumped into the pool?

A. $\frac{yz}{x+y+z}$

B. $\frac{yz}{yz+xz-xy}$

C. $\frac{yz}{yz+xz+xy}$

D. $\frac{xyz}{yz+xz-xy}$

E. $\frac{yz+xz-xy}{yz}$

Solution: baker-s-dozen-128782-20.html#p1057508

7. Metropolis Corporation has 4 shareholders: Fritz, Luis, Alfred and Werner. Number of shares that Fritz owns is $\frac{2}{3}$ rd of number of the shares of the other three shareholders, number of the shares that Luis owns is $\frac{3}{7}$ th of number of the shares of the other three shareholders and number of the shares that Alfred owns is $\frac{4}{11}$ th of number of the shares of the other three shareholders. If dividends of \$3,600,000 were distributed among the 4 shareholders, how much of this amount did Werner receive?

- A. \$60,000
- B. \$90,000
- C. \$100,000
- D. \$120,000
- E. \$180,000

Solution: baker-s-dozen-128782-20.html#p1057509

8. A set A consists of 7 consecutive odd integers. If the sum of 5 largest integers of set A is -185 what is the sum of the 5 smallest integers of set A?

- A. -165
- B. -175
- C. -195
- D. -205
- E. -215

Solution: baker-s-dozen-128782-20.html#p1057512

9. If x and y are negative numbers, what is the value of $\frac{\sqrt{x^2}}{x} - \sqrt{-y*|y|}$?

- A. 1+y
- B. 1-y
- C. -1-y
- D. y-1
- E. x-y

Solution: baker-s-dozen-128782-20.html#p1057514

10. If $x^2 < 81$ and $y^2 < 25$, what is the largest prime number that can be equal to $x-2y$?

- A. 7
- B. 11
- C. 13
- D. 17
- E. 19

Solution: baker-s-dozen-128782-20.html#p1057515

11. In an infinite sequence 1, 3, 9, 27, ... each term after the first is three times the previous term. What is the difference between the sum of 13th and 15th terms and the sum of 12th and 14th terms of the sequence?

- A. $10 \cdot 3^{11}$
- B. $20 \cdot 3^{11}$
- C. $10 \cdot 3^{12}$
- D. $40 \cdot 3^{11}$
- E. $20 \cdot 3^{12}$

Solution: baker-s-dozen-128782-40.html#p1057517

12. x, y and z are positive integers such that when x is divided by y the remainder is 3 and when y is divided by z the remainder is 8. What is the smallest possible value of $x+y+z$?

- A. 12
- B. 20
- C. 24
- D. 29
- E. 33

Solution: baker-s-dozen-128782-40.html#p1057519

13. If $x = \frac{(8!)^{10} - (8!)^6}{(8!)^5 - (8!)^3}$, what is the product of the tens and the units digits of $\frac{x}{(8!)^3} - 39$?

- A. 0
- B. 6
- C. 7

D. 12

E. 14

Solution: [baker-s-dozen-128782-40.html#p1057520](https://www.baker-s-dozen-128782-40.html#p1057520)