

SECTION 3

Time—25 minutes

16 Questions

Directions: In this section solve each problem, using any available space on the page for scratchwork. Then indicate the best of the answer choices given.

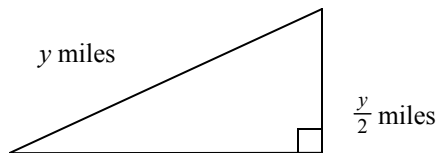
Numbers: All numbers used are real numbers.

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1. Maria works 4 days per week and earns d dollars per day. Which of the following represents the amount Maria earns at this job in w weeks?
(A) $4dw$
(B) $\frac{w}{4d}$
(C) $\frac{4d}{w}$
(D) $\frac{4w}{d}$
(E) $\frac{dw}{4}$
2. If 70 percent of 600 is 40 percent of x , then $x =$
(A) 105
(B) 168
(C) $342\frac{6}{7}$
(D) 660
(E) 1,050
3. Of the 60 employees of a certain company, twice as many are in the sales department as are in all of the other departments combined. What is the number of employees in the sales department?
(A) 15
(B) 20
(C) 30
(D) 40
(E) 45
4. $1 - \left(\frac{1}{2} - \frac{2}{3}\right) =$
(A) $\frac{6}{5}$
(B) $\frac{7}{6}$
(C) $\frac{6}{7}$
(D) $\frac{5}{6}$
(E) 0
5. In a certain fund, 40 percent of the money is invested in stocks, and of that portion, 20 percent is invested in preferred stocks. If the fund has \$576 invested in preferred stocks, what is the total amount of the fund?
(A) \$960
(B) \$1,440
(C) \$2,880
(D) \$4,608
(E) \$7,200
6. $(2^2 - 1)(2^2 + 1)(2^4 + 1)(2^8 + 1) =$
(A) $2^{16} - 1$
(B) $2^{16} + 1$
(C) $2^{32} - 1$
(D) $2^{128} - 1$
(E) $2^{16}(2^{16} - 1)$
7. NOT SCORED

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8. If the area of a circle is 64π , then the diameter of the circle is
- (A) 8
(B) 16
(C) 32
(D) 8π
(E) 16π
9. To be elected president of a certain organization, a candidate needs the votes of at least $\frac{2}{3}$ of its 1,331 members. What is the least number of votes the candidate needs to be elected?
- (A) 443
(B) 444
(C) 887
(D) 888
(E) 889
10.
$$\frac{(0.0036)(2.8)}{(0.04)(0.1)(0.003)} =$$
- (A) 840.0
(B) 84.0
(C) 8.4
(D) 0.84
(E) 0.084
11. In a sample of college students, 40 percent are third-year students and 70 percent are not second-year students. What fraction of those students who are not third-year students are second-year students?
- (A) $\frac{3}{4}$
(B) $\frac{2}{3}$
(C) $\frac{4}{7}$
(D) $\frac{1}{2}$
(E) $\frac{3}{7}$
12. If x dollars is invested at 10 percent for one year and y dollars is invested at 8 percent for one year, the annual income from the 10 percent investment will exceed the annual income from the 8 percent investment by \$56. If \$2,000 is the total amount invested, how much is invested at 8 percent?
- (A) \$280
(B) \$800
(C) \$892
(D) \$1,108
(E) \$1,200
13. The time it took car A to travel 400 miles was 2 hours less than the time it took car B to travel the same distance. If car A 's average speed was 10 miles per hour greater than that of car B , what was car B 's average speed, in miles per hour?
- (A) 20
(B) 30
(C) 40
(D) 50
(E) 80
14. If $\frac{2}{x} + \frac{3}{y} = 4$ and $xy = 5$, then $3x + 2y =$
- (A) $\frac{1}{5}$
(B) $\frac{1}{4}$
(C) $\frac{4}{5}$
(D) 4
(E) 20



15. A flat triangular cornfield has the dimensions shown in the figure above. If $y^2 = 2$, what is the area of the field in square miles?

- (A) $\frac{1}{4}$
- (B) $\frac{\sqrt{3}}{4}$
- (C) $\frac{1}{2}$
- (D) $\frac{\sqrt{3}}{2}$
- (E) 1

16. For any numbers a and b , $a \cdot b = a + b - ab$.

If $a \cdot b = 0$, which of the following CANNOT be a value of b ?

- (A) 2
- (B) 1
- (C) 0
- (D) -1
- (E) $-\frac{3}{2}$

STOP

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SECTION 7

Time—25 minutes

16 Questions

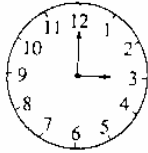
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1. The number 0.756 is how much greater than $\frac{3}{4}$?

(A) $\frac{6}{25}$
 (B) $\frac{3}{125}$
 (C) $\frac{3}{250}$
 (D) $\frac{3}{500}$
 (E) $\frac{1}{250}$



2. Between 3:00 a.m. and 3:00 p.m. of the same day, the minute hand of a properly operating clock, indicated by the figure above, will turn through how many degrees?

(A) 0
 (B) 1,200
 (C) 2,160
 (D) 4,320
 (E) 8,640

3. $(n + k)^2 - 2nk =$

(A) $n^2 + k^2$
 (B) n^2
 (C) 0
 (D) $n^2 - k^2$
 (E) $(n - k)^2$

4. If Jake loses 8 pounds, he will weigh twice as much as his sister. Together they now weigh 278 pounds. What is Jake's present weight, in pounds?

(A) 131
 (B) 135
 (C) 139
 (D) 147
 (E) 188

5. Ms. Jimenez plans an automobile trip of 7,000 to 9,000 miles. The cost of gasoline will be 85 to 95 cents per gallon, and her automobile will average 20 to 30 miles per gallon. What is the maximum possible cost of the gasoline for the trip?

(A) \$485.00
 (B) \$427.50
 (C) \$382.50
 (D) \$297.50
 (E) \$256.00

6. If x is a prime number greater than 2, which of the following could be a prime number?

(A) x^2
 (B) $\frac{x}{2}$
 (C) $3x$
 (D) $x - 4$
 (E) $x^2 + 1$

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7. A merchant made a gross profit of \$40 from the sale of a vase. If this gross profit was 25 percent of the cost of the vase to the merchant, for how many dollars more should the merchant have sold the vase for the gross profit to have been 30 percent of the cost?
- (A) \$2
(B) \$5
(C) \$8
(D) \$10
(E) \$12
8. If the ratio of 4 to $5\frac{1}{2}$ is equal to the ratio of y to $2\frac{3}{8}$, then $y =$
- (A) $\frac{11}{8}$
(B) $\frac{3}{2}$
(C) $\frac{14}{9}$
(D) $\frac{19}{11}$
(E) $\frac{15}{8}$
9. If the sum of the lengths of the edges of a cube is 60, the volume of the cube is
- (A) 1,000
(B) 422
(C) 216
(D) 150
(E) 125
10. Ann can have her bicycle repaired for \$50, or she can trade it in, as is, and receive \$22 credit toward the purchase of a new bicycle that sells for \$107. If Ann trades in her current bicycle, the cost to her of purchasing the new bicycle is what percent greater than the cost of having her current bicycle repaired?
- (A) 44%
(B) 60%
(C) 70%
(D) 114%
(E) 170%
11. At a constant speed of 72 kilometers per hour, a vehicle travels how many kilometers per second?
- (A) 0.02
(B) 0.2
(C) 0.6
(D) 1.2
(E) 6.0
12. Kim has 40 percent more money than Sal and Sal has 20 percent less money than Phil. If Sal and Phil have a combined total of \$1.80, how much money does Kim have?
- (A) \$1.00
(B) \$1.12
(C) \$1.20
(D) \$1.32
(E) \$1.40
13. A company wants to spend equal amounts of money for the purchase of two types of computer printers costing \$600 and \$375 per unit, respectively. What is the fewest number of computer printers that the company can purchase?
- (A) 13
(B) 12
(C) 10
(D) 8
(E) 5
14. The average (arithmetic mean) of 9 scores is N . If a 10th score is then included with the original 9, the average of the 10 scores is T . Which of the following expressions represents the value of the 10th score?
- (A) $10(T - N)$
(B) $10T - 9N$
(C) $\frac{10T - 9N}{10}$
(D) $\frac{10T - 9N}{9}$
(E) $\frac{10T - 9N}{2}$

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15. If n is a positive integer, the sum of the integers from 1 to n , inclusive, equals $\frac{n(n+1)}{2}$. Which of the following equals the sum of the integers from 1 to $2n$, inclusive?
- (A) $n(n+1)$
(B) $\frac{n(2n+1)}{2}$
(C) $n(2n+1)$
(D) $2n(n+1)$
(E) $2n(2n+1)$
16. If x is the average (arithmetic mean) of 5 consecutive even integers, which of the following must be true?
- I. x is an even integer.
II. x is a nonzero integer.
III. x is a multiple of 5.
- (A) I only
(B) III only
(C) I and II only
(D) I and III only
(E) I, II, and III

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ANSWER KEY

Section 2	Section 3	Section 4	Section 5	Section 6	Section 7
1. C	1. A	1. E	1. B	1. E	1. D
2. D	2. E	2. B	2. A	2. B	2. D
3. A	3. D	3. D	3. E	3. C	3. A
4. C	4. B	4. D	4. C	4. E	4. E
5. E	5. E	5. A	5. D	5. B	5. B
6. A	6. A	6. C	6. C	6. A	6. D
7. C	7. NOT SCORED	7. D	7. E	7. E	7. C
8. C	8. B	8. B	8. B	8. A	8. D
9. B	9. D	9. E	9. C	9. E	9. E
10. B	10. A	10. B	10. A	10. C	10. C
11. E	11. D	11. C	11. C	11. D	11. A
12. C	12. B	12. A	12. B	12. A	12. B
13. E	13. C	13. A	13. E	13. B	13. A
14. B	14. E	14. C	14. D	14. C	14. B
15. A	15. B	15. B	15. B	15. A	15. C
16. D	16. B	16. E	16. C	16. D	16. A
		17. E	17. D	17. C	
		18. B	18. A	18. A	
			19. B	19. D	
			20. B	20. B	
				21. C	
				22. A	