

1.What is the degree measure of the acute angle formed by the hands of a 12-hour clock that reads exactly 1 o'clock?

- A. 15°
- B. 30°
- C. 45°
- D. 60°
- E. 72°

2.What is the probability that a number selected at random from the set $\{2, 3, 7, 12, 15, 22, 72, 108\}$ will be divisible by both 2 and 3 ?

- F. $\frac{1}{4}$
- G. $\frac{3}{8}$
- H. $\frac{3}{5}$
- J. $\frac{5}{8}$
- K. $\frac{7}{8}$

3.A circle has a circumference of 16π feet. What is the radius of the circle, in feet?

- A. $\sqrt{8}$
- B. 4
- C. 8
- D. 16
- E. 32

4.A rectangle with a perimeter of 30 centimeters is twice as long as it is wide. What is the area of the rectangle in square centimeters?

- F. 15
- G. 50
- H. 200
- J. $3\sqrt{15}$
- K. $6\sqrt{15}$

5.In the standard (x,y) coordinate plane, what are the coordinates of the midpoint of a line segment whose endpoints are $(-3,0)$ and $(7,4)$?

- A. (2,2)
- B. (2,4)
- C. (5,2)
- D. (5,4)
- E. (5,5)

6.Points A , B , C , and D are on a line such that B is between A and C , and C is between B and D . The distance from A to B is 6 units. The distance from B to C is twice the distance from A to B , and the distance from C to D is twice the distance from B to C . What is the distance, in units, from the midpoint of BC to the midpoint of CD ?

- F. 18
- G. 14
- H. 12
- J. 9
- K. 6

7.Which of the following statements *must* be true whenever n , a , b , and c are positive integers such that $n < a$, $c > a$, and $b > c$?

- A. $a < n$
- B. $b - n > a - n$
- C. $b < n$
- D. $n + b = a + c$
- E. $2n > a + b$

8.The distribution of Jamal's high school grades by percentage of course credits is given in the circle graph below. What is Jamal's grade point average if each A is worth 4 points; each B, 3 points; and each C, 2 points?



- F.3.0
- G.3.4
- H.3.6
- J.3.7
- K.Cannot be determined from the given information

9.What is the difference between 1.8 and 1.08 ?
(Note: A bar indicates a digit pattern that is repeated.)

- A.0.71
- B.0.71
- C.0.719
- D.0.72
- E.0.72

10.Which of the following equations represents the linear relationship between time, t , and velocity, v , shown in the table below?

t	0	1	2
v	120	152	184

- F. $v = 32t$
- G. $v = 32t + 120$
- H. $v = 120t$
- J. $v = 120t + 32$
- K. $v = 120t + 120$

11.An industrial cleaner is manufactured using only the 3 secret ingredients A, B, and C, which are mixed in the ratio of 2:3:5, respectively, by weight. How many pounds of secret ingredient B are in a 42-pound (net weight) bucket of this cleaner?

- A. 4.2
- B.12.6
- C.14.0
- D.18.0
- E.21.0

12. If $n = 8$ and $16 \cdot 2^m = 4^{n-8}$, then $m = ?$

- F.-4
- G.-2
- H. 0
- J. 1
- K. 8