

Math Questions

Sample Mathematics Questions: Set 3

Click on the letter choices to determine if you have the correct answer and for question explanations. An actual ACT Mathematics Test contains 60 questions to be answered in 60 minutes.

DIRECTIONS: Solve each problem, choose the correct answer, and then fill in the corresponding oval on your answer document.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

- 1. Illustrative figures are NOT necessarily drawn to scale.
- 2. Geometric figures lie in a plane.
- 3. The word *line* indicates a straight line.
- 4. The word *average* indicates arithmetic mean.

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 $(-3, 4)$ and $(7,4)$?

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

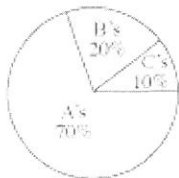
6. Points A , B , C , and D are on a line such that B is between A and C , and C is between B and D . The distance from A to B is 6 units. The distance from B to C is twice the distance from A to B , and the distance from C to D is twice the distance from B to C . What is the distance, in units, from the midpoint of \overline{BC} to the midpoint of \overline{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 $b > n$?

- 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 $1.0\overline{8}$?
(Note: A bar indicates a digit pattern that is repeated.)
- A. $0.\overline{71}$
- B. $0.\overline{71}$
- C. $0.7\overline{19}$
- D. $0.7\overline{2}$
- E. $0.\overline{72}$
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