

Algebra



Algebra

Concepts Revision



Algebra

1. Kevin is more than 15 years old.

Quantity A

Six years more than twice
Kevin's age

Quantity B

Thrice of Kevin's age five
years ago

- A. Quantity A is greater
- B. Quantity B is greater
- C. The two quantities are equal
- D. The relationship cannot be determined from the information given.



Algebra

2. A certain hotel has two types of rooms – Delux and Villa. Each Delux room has 3 beds and 2 couches and each Villa has 4 beds and 7 couches. If the hotel has a total of 20 beds and 22 couch, what percentage of the rooms are Delux?
- A. 20
 - B. 33.3
 - C. 50
 - D. 66.7
 - E. 75



Algebra

3.

$$a > b \text{ and } ab > 0$$

Quantity A

$$(a^5)^{-3}$$

Quantity B

$$(b^{-4})^3$$

- A. Quantity A is greater
- B. Quantity B is greater
- C. The two quantities are equal
- D. The relationship cannot be determined from the information given.



Algebra

4. If $-1 < x < 0$, $0 < y < 1$, and $x + y > 0$, then which of the following must be true?

A. $x > xy$

B. $\frac{1}{y^2} > \frac{1}{x^2}$

C. $x^2 > y^2$

D. $\frac{1}{x^3} > \frac{1}{y^3}$

E. $\frac{1}{x^2} > \frac{1}{y^2}$



Algebra

5.

$$a^2 < b^2 \text{ and } |a| < -b$$

Quantity A

a

Quantity B

b

- A. Quantity A is greater
- B. Quantity B is greater
- C. The two quantities are equal
- D. The relationship cannot be determined from the information given.



Algebra

6. For which of the following, all the values of x will satisfy $|x + 1| + |x - 2| < 7$?
- A. $x > 3$
 - B. $x < 0$
 - C. $2 < x < 6$
 - D. $-3 < x < 4$
 - E. $-4 < x < 1$



Algebra

7. If $|2x - 4|$ is equal to 2 and $(x - 3)^2$ is equal to 4, then what is the value of x ?
- A. 1
 - B. 2
 - C. 3
 - D. 4
 - E. 5



Algebra

8. The equation $x^2 + px - q = 0$ has equal roots. One of the roots of the equation $x^2 + px + 55 = 0$ is 5. What is the value of q ?
- A. -64
 - B. -16
 - C. -8
 - D. $\frac{1}{16}$
 - E. $-\frac{1}{64}$



Algebra

9. Sansa is standing on the roof of her house of height 20 feet. She throw a ball upwards from the terrace of her house. The height of the ball from ground after t seconds is given by the function $h(t) = a - 10(b - t)^2$, where a and b are positive constants. If the ball reaches a maximum height of 60 feet when $t = 2$, then what will be the height, in feet, of the ball when $t = 3$?
- A. 20
 - B. 30
 - C. 40
 - D. 50
 - E. 60



Algebra

10. If $(x + 1)^2 - 2x \geq 2(x + 1) + 2$, then x cannot equal which one of the following?

- A. -5
- B. -3
- C. 0
- D. 3
- E. 5



Algebra

11. Let C and K be constants. If $x^2 + Kx + 5$ factors into $(x + 1)(x + C)$, the value of K is
- A. 0
 - B. 5
 - C. 6
 - D. 8
 - E. Cannot be determined



Algebra

12. A line passes through the points $(-2, 6)$ and $(7, 3)$. Which of the following are equations of lines that are perpendicular to the given line? Indicate ALL such lines.

A. $y = x + 4$

B. $y = -x + 1$

C. $y = 3x - 5$

D. $y = 3x + 6$

E. $y = -3x + 2$

F. $y = -\frac{1}{3}x + 7$

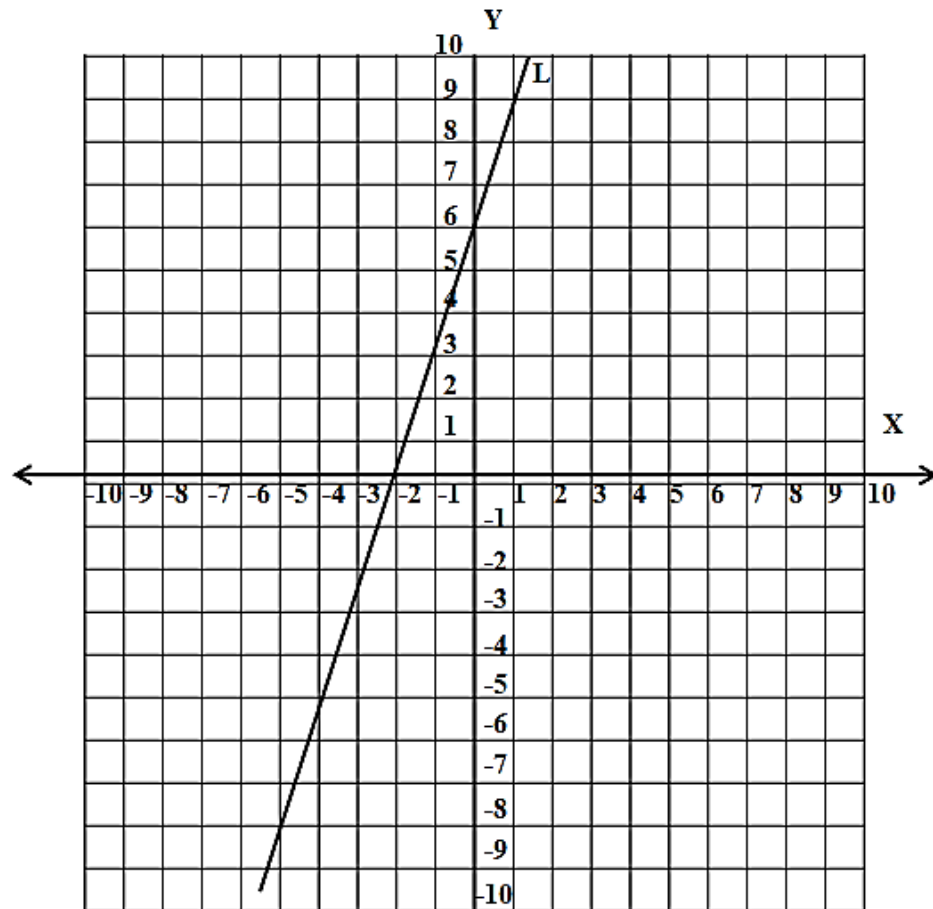
G. $2y = 6x + 8$

H. $6y - 2x = 8$



Algebra

13. Line M, not shown, is the reflection of line L about the y-axis. What is the slope of a line perpendicular to line M?



Algebra

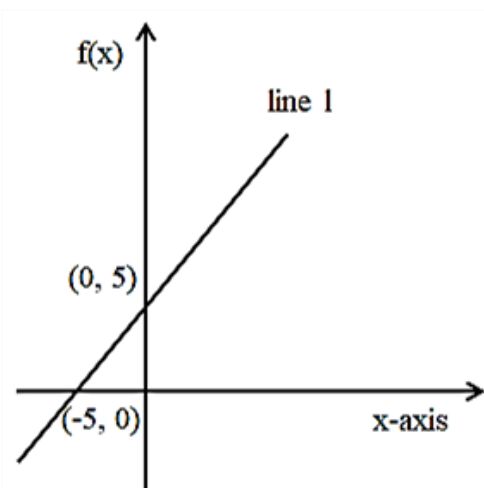
14. How many points with integer values of x and y both will lie on the graph of the equation $x^2 + y^2 = 25$?

- A. 4
- B. 8
- C. 12
- D. 16
- E. 20



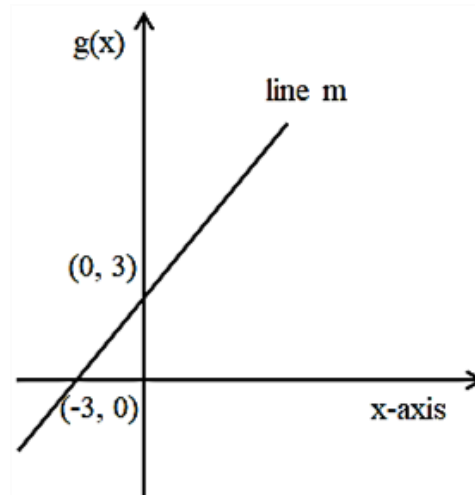
Algebra

15. In the two figures shown, line l represents the function f and line m represents the function g .



Quantity A

$f(5)$



Quantity B

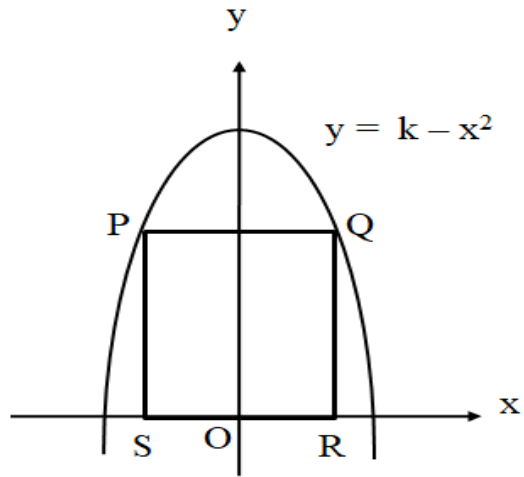
$g(5)$

- A. Quantity A is greater
- B. Quantity B is greater
- C. The two quantities are equal
- D. The relationship cannot be determined from the information given.



Algebra

16.



The figure above shows the graph of $y = k - x^2$ for some constant k . If the square PQRS intersects the graph at points P and Q and the area of the square is 25, what is the value of k ?

- A. 5
- B. 6.25
- C. 10
- D. 11.25
- E. 12.5





Thank you