GRE Quant Foundation Assessment Test (Coordinate Geometry)

Total points   28/38   ❓

This is an assessment designed to assess your GRE Quant Foundation knowledge. None of the questions are tricky. None of the questions are puzzles. They solely test knowledge.

Calculators: You can use a calculator but it has to be one of those crappy ones like the one on your phone when you turn it vertically. Or the one on the ETS website in the PowerPrep exams. Or https://www.gregmat.com/tools/calculator

Email *

irfanshuvo88@gmail.com

✓ In the xy-coordinate plane, the origin is at point (a, b), where a and b are   1/1
   both integers. What is a + b?

0   ✓

✓ In the xy-coordinate plane, which axis lies in the horizontal direction?   1/1

◉ the x-axis   ✓

◯ the y-axis

◯ neither

✓ If a and b are positive integers, then the point (a, -b) would be plotted in   1/1
which of the following quadrants?

○ Quadrant I

○ Quadrant II

○ Quadrant III

◉ Quadrant IV   ✓

✓ If a and b are negative integers, then the point (a, -b) would be plotted in   1/1
which of the following quadrants?

○ Quadrant I

◉ Quadrant II   ✓

○ Quadrant III

○ Quadrant IV

✓ Which of the following points is the reflection of the point (4, -3) about the   1/1
x-axis?

◉ (4, 3)   ✓

○ (-4, 3)

○ (-4, -3)

○ (3, -4)

○ (-3, -4)

✓ Which of the following points is the reflection of the point (-2, 5) about the   1/1
origin?

○ (2, 5)

◉ (2, -5)   ✓

○ (-2, -5)

○ (5, -2)

○ (-5, 2)

✓ What is the distance between points (-3, -7) and (2, -19)?   1/1

If necessary, round your answer to the nearest integer.

13   ✓

✓ How many points lie at a distance of 5 from the origin?   1/1

○ 1

○ 2

○ 4

◉ an infinite number   ✓

✗ **Which of the following equations is/are plotted as a horizontal line in the xy-coordinate plane?**   0/1

☑ 3x + 5y = 7   ✗

☑ y = 3x + 4   ✗

☐ 5y = 14

☐ x = 5

☐ y = -4

☐ y = 0x + 11

Correct answer

☑ 5y = 14

☑ y = -4

☑ y = 0x + 11

✓ **What is the slope of the line represented by the equation -4x + 8y = -5?**   1/1

1/2 _____   ✓

✓ **What is the slope of a line that intersects points (8, -2) and (-5, -4)?**   1/1

Write your answer as a fraction in the form of a/b.

2/13 _____   ✓

✗ A certain line segment with a slope of 1.5 intersects the point (1, 1) and   0/1
continues on in quadrant I. What is the **first possible** additional point the
line intersects where both coordinates are integers?

Give your answer in the form (a, b) where a and b are integers.

(2,5/2)   ✗

Correct answers

(3, 4)

(3,4)

✗ A certain line with a slope of 1 that intersects the origin has the property   0/1
that each point plotted above it in Quadrant I has a y-coordinate that is
greater than its x-coordinate. What is the equation of this line?

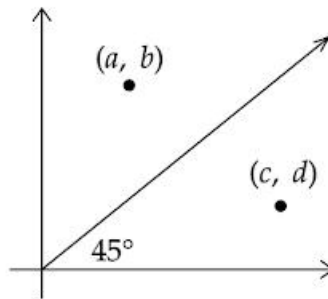   ✗

Correct answers

y=x

y = x

x=y

x = y

✓ Which of the following quantities is larger?   1/1

○ a + d

● b + c   ✓

○ The two quantities are equal.

○ It cannot be determined.

✓ What is the y-intercept of a line with the equation (1/3)x + (3/4)y = -7?   1/1

-28/3   ✓

✓ What is the x-intercept of a line with the equation y = 3x + 9?   1/1

-3   ✓

✓ What is the **product** of the x and y intercepts of a line with the equation y =   1/1
  -2x + 4?

8   ✓

✓ If every point on the line with the equation y = 5x + 7 were to be shifted   1/1
vertically up a distance of 3, then what would the new y-intercept of the line
be?

10 ✓

✓ If every point on the line with the equation y = -4x + 12 were to be shifted   1/1
vertically up a distance of 8, then, relative to the original x-intercept, the
new x-intercept would shift

◯ a distance of 2 to the left

◉ a distance of 2 to the right ✓

◯ a distance of 4 to the left

◯ a distance of 4 to the right

◯ a distance of 8 to the left

◯ a distance of 8 to the right

✓ Which of the following equations would result in a line that is parallel to the 1/1
line with the equation y = 3x - 1?

☑ y = 3x + 8 ✓

☑ 2y - 6x = 17 ✓

☐ 3y + 9x = -2

☑ (1/9)y - (1/3)x = 4 ✓

✓ What is the intersection point of the lines with equations y = 3x + 4 and y =   1/1
   -2x - 11?

(-3,-5) _____   ✓

✗ How many times does the parabola with the equation below intersect the   0/1
   x-axis?

$$y = 3x^2 + 7x + 5$$

○ 0

○ 1

◉ 2   ✗

Correct answer

◉ 0

✗ How many times does the parabola with the equation below intersect the   0/1
   x-axis?

$$y = 2x^2 - 8x + 8$$

○ 0

○ 1

◉ 2   ✗

Correct answer

◉ 1

✗ What is the y-coordinate of the vertex of the parabola with the equation y =   0/1
   (x - 6)(x + 2)?

-12   ✗
_____

Correct answer

-16

✓ What is the **sum** of the x-intercepts of the parabola with the equation y = (x   1/1
   - 3)(x + 4.5)?

-1.5   ✓
_____

✓ How many x-intercepts does the equation below have when it is plotted in   1/1
   the xy-coordinate plane?

$$y = x^3 - x$$

3   ✓
_____

✓ How many x-intercepts does the equation below have when it is plotted in   1/1
   the xy-coordinate plane?

$$y = (x - 5)(x - 3)(x - 1)x(x + 1)(x + 3)(x + 5)$$

7   ✓
_____

✓   What is the slope of a line that is perpendicular to the line with the equation 1/1
-4x - 3y = 8?

3/4   ✓

✓   What is the minimum possible y value of a line with the equation below?   1/1

$$y = x^2 + 8x + 15$$

-1   ✓

✗   What is the minimum possible y value of a line with equation below?   ⋯/1

$$y = x^2 + 10x - 3$$

                                             ✗

Correct answer

-28

✕   What are the coordinates of the vertex of a parabola with the equation   0/1
below?

Write your answer in the form of (a, b), where a and b are integers.

$$y = x^2 - 8x + 2$$

_____

✕

Correct answers

(4, -14)

(4,-14)

✓   When plotted in the xy-coordinate plane, the graph of the equation below   1/1
intersects the x-axis how many times?

$$y = \left| x^2 - 7x \right| - 7$$

○   0

○   1

○   2

○   3

◉   4   ✓

✓ An odd function is symmetrical about the y-axis.   1/1

○ True

◉ False   ✓

✓ An even function is symmetrical about the y-axis.   1/1

◉ True   ✓

○ False

✕ Which of the following equations have **no** symmetry with either the x-axis,   0/1
   y-axis, or origin?

$$y = x^2 + 1$$

☐ Option 1

$$y = x^3 - 4$$

☑ Option 2   ✓

$$x = y^2 + 3$$

☐ Option 3

$$y = x^4 + x^3 + x^2$$

☐ Option 4

Correct answer

☑ Option 2

☑ Option 4

✓   What is the center of a circle with the equation below?   1/1

Write your answer in the form (a, b), where a and b are integers.

$$16 = (x - 3)^2 + (y + 4)^2$$

(3,-4)   ✓

✓   What is the center of a circle with the equation below?   1/1

Write your answer in the form (a, b), where a and b are integers.

$$3 = x^2 + 4x + y^2 - 6y$$

(-2,3)   ✓

✗   A line segment in currently in quadrant 1 has one end point fixed at the   0/1
origin and the other end point at (3, 5). If the line segment were to be
rotated 90° counterclockwise, with one end point remaining fixed at the
origin, then what would the coordinates of the other end point be?

Give your answer in the form (a, b), where a and b are integers.

(-5,-3)   ✗

Correct answers

(-5, 3)

(-5,3)

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