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QUESTION 1

Drag and drop the correct answer to complete the statements.

Find a second point on the line passing through the point $(-2, 1)$ with slope $m = 2$.

$m = \dfrac{y_2 - y_1}{x_2 - x_1}$	Slope formula
$= \dfrac{y_2 - 1}{x_2 - (-2)}$ (2 ✓)	Substitute $m = 2$, and $x_1 = -2$ and $y_1 = 1$.
$2 = \dfrac{y_2 - 1}{x_2 + 2}$	Simplify.
Let $x_2 = 1$, then $2 =$	Take any value for x.

$\frac{y_2 - 1}{1 + 2}$ ✓	
$2 = \frac{y_2 - 1}{3}$	Simplify.
$6 = y_2 - 1$ and $y_2 = 7$	Multiply each side by 3.

A second point is then $(1, 7)$ ✓.

$x_1 = -1$ | $(7, 1)$ | Point-slope formula | -2 | $6 = x_1 - 1$

QUESTION 2

Write the equation of the line that passes through the point $(-5, 7)$ and is perpendicular to the line described by $15x - 3y = -3$.

Drag and drop the correct equation.

$y = -\frac{1}{5}x + 6$ ✓

$y = 5x + 32$

$y = \frac{1}{5}x + 8$

$y = -\frac{1}{5}x - 6$

QUESTION 3

If the line passing through (2, 7), and *(d,* 15) is parallel to the line

$2x - y + 7 = 0$

, what is the value of *d?*

Enter the correct answer into the blank.

d = 6 ✓

QUESTION 4

What is true about any two lines drawn in the rectangular system?

☑ If the product of the slopes of two lines is -1, they are perpendicular. ✓

☑ If one line is vertical, and the other is horizontal, then the two lines are perpendicular. ✓

- [ ] If the product of the slopes of two lines is -1, they are parallel.
- [ ] If the two lines have the same slope, they are perpendicular.
- [ ] If the two lines are vertical, they are perpendicular.
- [x] If the two lines have the same slope, they are parallel. ✓

QUESTION 5

Select the correct answer from the drop-down menu to complete the statement.

Find the equation of the line perpendicular to $y = -5x - 3$ and passing through the point $(0, -1)$.

Since the line is perpendicular to $y = -5x - 3$, its slope is $m =$ $\frac{1}{5}$ ✓, and its equation is $y = \frac{1}{5}x - 1$ ✓.

QUESTION 6

Drag and drop the correct answer to complete the sentences.

The two lines

$y = 3x + 1$

and

$y = 3x - 1$

are parallel ✓.

The two lines

$y = 2x + 3$

and

$y = -\frac{1}{2}x + 3$

are perpendicular ✓.

vertical | neither perpendicular nor parallel | horizontal | congruent

QUESTION 7

Choose the correct answer.

What is the point-slope form of a line passing through the point

(x_0, y_0)

and having the slope

m

?

- ○ $y = m(y - y_0) + x_0$
- ○ $y = m(x + x_0) - y_0$
- ◉ $y = m(x - x_0) + y_0$ ✓
- ○ $x = m(y - y_0) + x_0$

QUESTION 8

Select the correct answer from the drop-down menus.

Determine whether the points $(2, -3)$, $(1, 0)$, and $(-2, 9)$ are collinear.

The slope of the line joining $(2, -3)$ and $(1, 0)$ is $m_1 =$

-3 ✓ .

Likewise, the slope of the line joining
$(1, 0)$
and
$(-2, 9)$
is
$m_2 =$

-3 ✓ .

Since the slopes are equal ✓, the three points are collinear.

QUESTION 9

Choose the correct answer.

Consider the two straight lines
d
and
d'
of respective equations
$d: y = ax + b$
and
$d': y = a'x + b'$
, where
$a \neq 0$
and
$a' \neq 0$
.

Through a point A, which neither belongs to
d

nor to
d'
, two straight lines
d_1
and
d_2
are
drawn such that
d_1
is parallel to
d
, and
d_2
is parallel to
d'
.

Ahmed deduces the following statements:
A:
d_1
and
d_2
are parallel if and only if
d
and
d'
are parallel.
B:
d_1
and
d_2
are perpendicular if and only if
d
and
d'

are perpendicular.
C:
d_1
and
d_2
are confounded if and only if
d
and
d'
are confounded.

Among these statements, which is/are correct?

- All the statements are correct.
- Statement *C* is correct.
- Statement *A* is correct.
- Statement *B* is correct. ✓

QUESTION 10

Fill in the blanks with the correct answer.

A government records, every five years, the number of barrels of gasoline used in that year as shown in the table.

Let *x* be the number of years since 2005, and *y* be the number of barrels, rounded to the nearest million.

Use an equation of a line to predict the consumption of gasoline in the year 2025.

The slope of the line is

$m =$

Year	Barrels of Gasoline
2005	818,123,23
2010	837,645,89

4 ✓.

2015	858,345,42

The slope-intercept form of the line joining the points (0, 818) and (5, 838) is

$y = 4x + 818$ ✓.

The predicted number of barrels for the year 2025 is 898 ✓

million.

QUESTION 11

Drag and drop the correct answer to complete the statement.

Find the equation of the line parallel to

$y = 4x - 3$

and passing through the point

$(1, -1)$

.

Since the line is parallel to

$y = 4x - 3$

, its slope is

$m =$

4 ✓, and its equation is $y = 4x - 5$ ✓.

$y = x - 1$ $y = -3x + 2$ 1 $y = -x$ -3 -1

QUESTION 12

Select the correct answer from the drop-down menus.

Find the equation of a line passing through

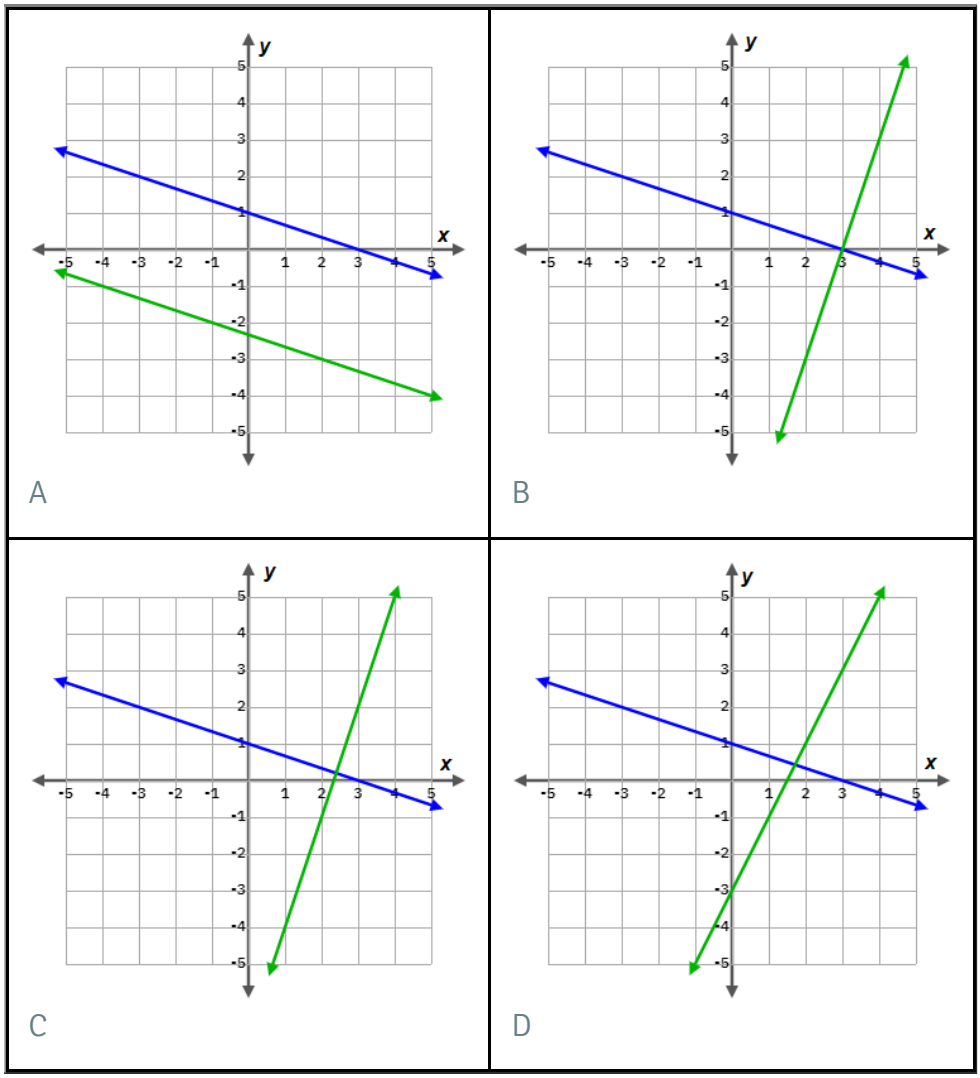
$(2, -3)$

and perpendicular to the line of equation

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

. Then, graph these lines.

The equation of the second line is $y = 3x - 9$ ✓, and the graph of the two lines is shown in figure B ✓.



QUESTION 13

Select the correct answer from the drop-down menu.

For $x_1 \neq x_2$, the slope of a line through two points (x_1, y_1) and (x_2, y_2) is $m = \frac{y_2 - y_1}{x_2 - x_1}$.

For $x_1 = x_2$ and $y_1 \neq y_2$, the slope of a line through two points (x_1, y_1) and (x_2, y_2) is undefined.

QUESTION 14

Drag and drop the correct answer to complete the statement.

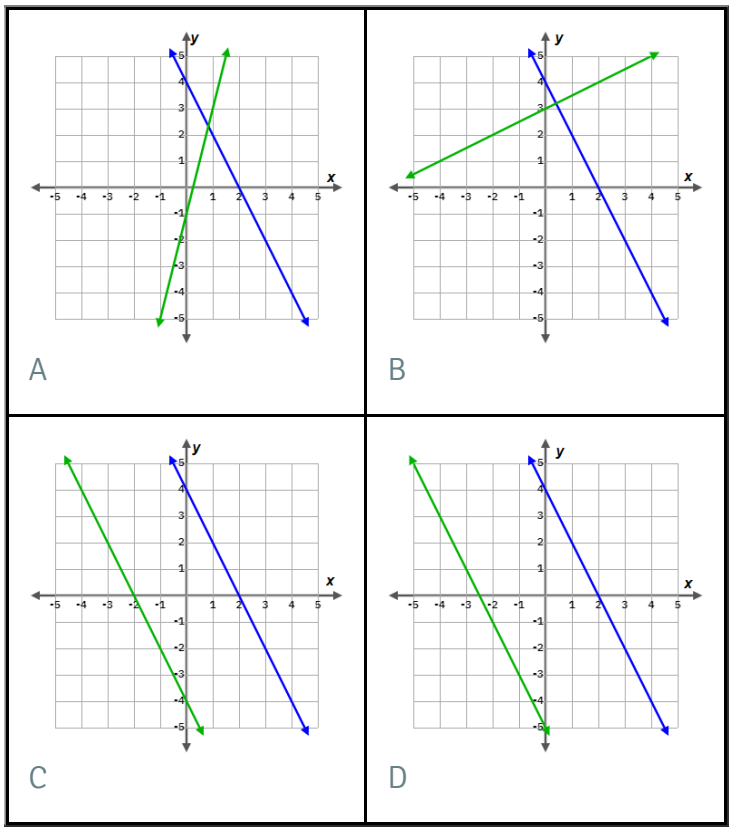
Find the equation of a line passing through $(-2, -1)$

and parallel to the line

$y = -2x + 4$

. Then graph these lines.

The equation of the second line is $y = -2x - 5$ ✓, and the graph of the two lines is shown in figure D ✓.



B $y = -2x - 4$ A $y = \frac{1}{2}x + 3$ C $y = 4x - 1$

QUESTION 15

Choose the correct answer.

The cost of producing a given item is AED 2, and the fixed cost is AED 200.

If

$x \geq 0$

represents the number of items produced, then the total cost function is:

- $C(x) = 2(x - 200)$
- $C(x) = 2x$
- $C(x) = 2(x + 200)$
- $C(x) = 2x + 200$ ✓