Topics 1 and 2

1) Which of the sets shown includes the elements of Set Z that are both odd numbers and multiples of 5?

$Z = \{-15, -12, -10, 2, 7, 10, 20\}$

Ⓐ $\{-15\}$

Ⓑ $\{-15, -10, 10, 20\}$

Ⓒ $\{-15, -10, 7, 10, 20\}$

Ⓓ $\{-15, -12, -10, 2, 7, 10, 20\}$

2) Order the numbers from least to greatest.

$\frac{25}{7}$, 3.6, $\sqrt{12}$, $\sqrt{\frac{49}{4}}$

_____, _____, _____, _____

3) What is the value of x in this equation?

$5x - 2(2x - 1) = 6$

Ⓐ 3

Ⓑ 4

Ⓒ 7

Ⓓ 8

4) The sum of three consecutive integers is 111. What are the three numbers?

Number 1: _____

Number 2: _____

Number 3: _____

5) How many solutions are there to this equation?

$7x - 3(x - 1) = 2(2x + 3)$

Ⓐ no solution

Ⓑ exactly one solution

Ⓒ at least two solutions

Ⓓ infinitely many solutions
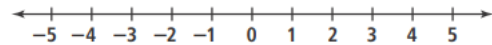
6) Solve the equation $y = ax - b$ for the variable x.

Ⓐ $x = \frac{y}{a} + b$

Ⓑ $x = \frac{a + b}{y}$

Ⓒ $x = y + \frac{b}{a}$

Ⓓ $x = \frac{y + b}{a}$

7) Solve the inequality.

$4(x + 3) - 7 \geq x + 3(x + 1)$

Ⓐ $x < 5$

Ⓑ $x > 3$

Ⓒ no solution

Ⓓ all real numbers

8) Graph the solution of the inequality on the number line.

$x - (5 - 3x) \leq 2x - 1$

9) Solve the compound inequality.

$2(x - 2) + 7 > -1$ and $5 - 4x > 9$

Ⓐ $x < -2$ and $x < 1$

Ⓑ $x > -2$ and $x < 1$
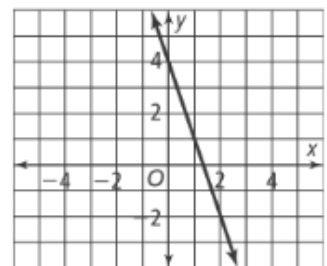
Ⓒ $x < -2$ and $x < -1$

Ⓓ $x > -2$ and $x < -1$

10) Which equation matches the graph?

A $y = -3x + 4$

B $y = -4x + 3$

C $y = -3x - 4$

D $y = -4x - 3$

11) Which of the following is an equation of the line through (2, 3) and (−1, −12)?

Ⓐ $y = \frac{1}{5}x + \frac{13}{5}$ Ⓑ $y = -\frac{1}{5}x + \frac{17}{5}$

Ⓒ $y = 5x - 7$ Ⓓ $y = -5x + 7$

12) Mark is saving to buy an $800 phone. He saves $50 each week from raking leaves. Which linear equation represents the amount Mark still has to save after x weeks?

A $y = 50x + 800$

B $y = 50x - 800$

C $y = -50x - 800$

D $y = -50x + 800$

13) Complete the equation for the horizontal line that passes through $(-5, 7)$

$y =$ [   ]

14) Which equation matches the graph?

A $y - 4 = 3(x - 2)$

B $y + 4 = 3(x + 2)$

C $y - 4 = -3(x - 2)$

D $y + 4 = -3(x + 2)$

15) What is an equation in point-slope form of the line that passes through the point (4, −1) and has slope 6?

Ⓐ $y + 1 = 6(x - 4)$

Ⓑ $y + 1 = -6(x - 4)$

Ⓒ $y - 1 = 6(x + 4)$

Ⓓ $y - 1 = -6(x + 4)$

16) What is an equation in point-slope form of the line that passes through (−7, 1) and (−3, 9)?

Ⓐ $y + 3 = 2(x - 9)$

Ⓑ $y - 3 = 2(x + 9)$

Ⓒ $y + 9 = 2(x - 3)$

Ⓓ $y - 9 = 2(x + 3)$

17) What are the x-intercept and the y-intercept of the graph of $9x - 7y = -63$?

Ⓐ x-intercept: 7; y-intercept: −9

Ⓑ x-intercept: −7; y-intercept: 9

Ⓒ x-intercept: 9; y-intercept: −7

Ⓓ x-intercept: −9; y-intercept: 7

18) Derek has $20 to spend on used books. Hardcover books cost $5 each and paperbacks cost $2 each. What equation in standard form determines the number x of hardcover books and the number y of paperback books he can buy?

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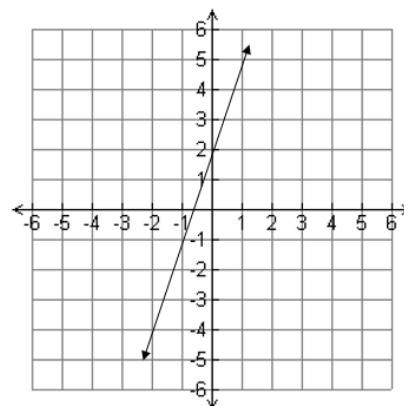
19) Write the equation in slope-intercept form of the line that passes through (6, −11) and is parallel to the graph of $y = -\frac{2}{3}x + 12$.

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20) What is the y-intercept of the line $y + 11 = -2(x + 1.5)$?

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