Linear & Linear Relationships

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Name: Answers

7 8 9 10 **11** 12

Navigator Assessment Student 25 min

Question: 1

Determine the value of x that satisfies the equation: $\frac{3(x-3)}{2}+\frac{4(2x+5)}{5}=25-2x$

$$\frac{15(x-3)+8(2x+5)}{10}=25-2x$$

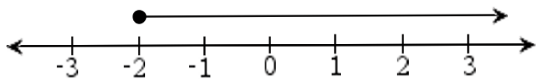
$$31x-5=250-20x$$

Students may also use the solve command on the calculator.

$$51x=255$$

$$x=5$$

Question: 2



The region shown could be represented by:

a) [-2, ∞] b) (-2, ∞) c) **[-2, ∞)** d) (-2, ∞] e) None of these

Question: 3

In simplest terms, the difference between two consecutive perfect squares could be written as:

a) y^2-x^2 b) **$2x+1$** c) x^2-1 d) $3x^2$ e) 1

Question: 4

$10x+3y+z=12$, $8x-4y-z=20$ and $13x+5y+z=26$ intersect when:

a) $x=-2$, $y=-4$, $z=20$

b) **$x=2$, $y=4$, $z=-20$**

c) $x=0$, $y=0$, $z=0$

d) $x=-10$, $y=-3$, $z=-1$

e) $x=10$, $y=3$, $z=1$

Question: 5

A straight line with gradient 2 passing through the point (2, 7) could be written as:

a) $y=2x+7$ b) $y=7x+2$

c) $2x+y=7$ d) $2x-y=7$

e) **$4x-2y+6=0$**

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Question: 6

When the equations: $ax + 2y = b$ and $3x - by = a$ do not have a unique solution, the relationship between a and b can be expressed as:

a) $a = 6$, $b = -6$ b) $a = 3$, $b = 2$ c) $ab = -6$ d) $ab \neq -6$ e) $ab < 6$

Question: 7

The points (2, 3), (5, 7) and (11, b) are collinear. The value of b is therefore:

a) 10 b) 11 c) 14 d) 15 e) None of these

Question: 8

The line $y = 2x - 5$ is perpendicular to:

a) $y = -2x - 5$ b) $y = 2x + 5$ c) $x + 2y - 8 = 0$ d) $x - 2y + 5 = 0$ e) $x - 2y - 5 = 0$

Question: 9

Determine the distance between the points: (3, 7) and (15, 12)

$$\begin{aligned} \text{distance} &= \sqrt{(15-3)^2 + (12-7)^2} \\ &= \sqrt{144 + 25} \\ &= 13 \end{aligned}$$

Question: 10

The centre of a circle is located at the point (5, 7). The point (7, 4) lies on the circle. Determine the area of the circle:

$$\begin{aligned} \text{radius} &= \sqrt{(7-5)^2 + (4-7)^2} \\ &= \sqrt{13} \\ \text{Area} &= 13\pi \end{aligned}$$

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