Linear equations and graphs: 10 practice questions

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Name: _____ Date: _____

Attempt all questions and show your working. Suggested time: 15 to 20 minutes.

Section A: Consolidating (Questions 1-4)

Question 1

Copy and complete the table of values for y = 2x + 1.

x	-2	-1	0	1	2
y	☐	☐	☐	☐	☐

Question 2

(a) Does the point (3, 7) lie on the line y = 3x - 2? Show how you know.

(b) Does the point (-1, 4) lie on the line y = -2x + 3? Show how you know.

Question 3

Solve:

(a) x + 9 = 15

(b) 4x = 28

(c) 2x - 5 = 13

Question 4

State the gradient and the y-intercept of each line.

(a) y = 4x - 3

(b) y = -x + 6

(c) y = ½x

Section B: Standard (Questions 5-10)

Question 5

Find the x-intercept and the y-intercept of each line.

(a) $y = 2x - 8$

(b) $3x + 4y = 12$

(c) $x - 2y = 6$

Question 6

(a) Find the coordinates of the two points where the line $2x + 5y = 10$ crosses the axes.

(b) Sketch the line on a set of axes, labelling both intercepts.

(c) Use your two points to find the gradient of the line.

Question 7

Rearrange each equation into the form $y = mx + c$.

(a) $3x + y = 7$

(b) $4x - 2y = 8$

(c) $x + 3y = 9$

Question 8

Solve:

(a) $5x + 4 = 2x + 19$

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

(c) $(x + 3)/(4) = 5$

(d) $2x/3 - 1 = 7$

Question 9

(a) Write the equation of the horizontal line that passes through $(2, -5)$.

(b) Write the equation of the vertical line that passes through $(4, 1)$.

(c) Find the point where the line $x = 3$ meets the line $y = 2x - 1$.

Question 10

A straight line passes through the two given points. Find its gradient and its equation in the form $y = mx + c$.

(a) $(1, 5)$ and $(3, 11)$

(b) $(0, -2)$ and $(4, 6)$

Linear equations and graphs: answers

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Question 1

Answer: -3, -1, 1, 3, 5

Question 2

Answer: (a) Yes: 3 × 3 - 2 = 7 (b) No: -2 × (-1) + 3 = 5, not 4

Question 3

Answer: (a) x = 6 (b) x = 7 (c) x = 9

Question 4

Answer: (a) gradient 4, y-intercept -3 (b) gradient -1, y-intercept 6 (c) gradient ½, y-intercept 0

Question 5

Answer: (a) x-intercept 4, y-intercept -8 (b) x-intercept 4, y-intercept 3 (c) x-intercept 6, y-intercept -3

Question 6

Answer: (a) (5, 0) and (0, 2) (b) a straight line through (5, 0) and (0, 2), sloping down from left to right (c) -⅖

Question 7

Answer: (a) y = -3x + 7 (b) y = 2x - 4 (c) y = -⅓x + 3

Question 8

Answer: (a) x = 5 (b) x = 7 (3x - 6 = 2x + 1) (c) x = 17 (d) x = 12

Question 9

Answer: (a) y = -5 (b) x = 4 (c) (3, 5)

Question 10

Answer: (a) gradient 3, y = 3x + 2 (b) gradient 2, y = 2x - 2