Straight line graphs Ans

worksheet ans

0 min
0 marks

1. (a) $0 + 2y = 12$ or $x + 2(0) = 12$ (M1)
P(0, 6)   (accept $x = 0$, $y = 6$) (A1)
Q(12,0)   (accept $x = 12$, $y = 0$) (A1) (C3)

> *Notes: Award (M1) for setting either value to zero.*
> *Missing coordinate brackets receive (A0) the first time this*
> *occurs. Award (A0)(A1)(ft) for P(0,12) and Q(6, 0).*

(b) $x + 2(x - 3) = 12$ (M1)
(6, 3)   (accept $x = 6$, $y = 3$) (A1)(A1) (C3)

> *Note: (A1) for each correct coordinate.*
> *Missing coordinate brackets receive (A0)(A1) if this is the first*
> *time it occurs.*

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2. (a) $\dfrac{8-4}{5-(-1)}$ (M1)

> *Note: Award (M1) for correct substitution into the gradient*
> *formula.*

$\dfrac{2}{3}\left(\dfrac{4}{6},\ 0.667\right)$ (A1) (C2)

(b) $y = \dfrac{2}{3}x + c$ (A1)(ft)

> *Note: Award (A1)(ft) for their gradient substituted in their equation.*

$y = \dfrac{2}{3}x + \dfrac{14}{3}$ (A1)(ft) (C2)

> *Notes: Award (A1)(ft) for their correct equation.*
> *Accept any equivalent form.*
> *Accept decimal equivalents for coefficients to 3 sf.*

OR

$y - y_1 = (x - x_1)$ (A1)(ft)

> *Note: Award (A1)(ft) for their gradient substituted in the equation.*

$y - 4 = \dfrac{2}{3}(x + 1)$ **OR** $y - 8 = \dfrac{2}{3}(x - 5)$ (A1)(ft) (C2)

> *Note: Award (A1)(ft) for correct equation.*

(c) $y = \dfrac{2}{3} \times 8 + \dfrac{14}{3}$ **OR** $y - 4 = \dfrac{2}{3}(8 + 1)$ **OR** $y - 8 = \dfrac{2}{3}(8 - 5)$ (M1)
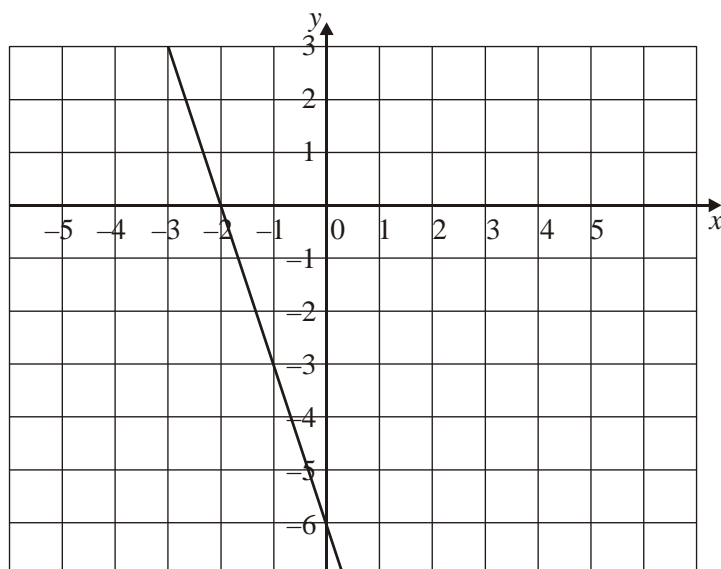
> *Note: Award (M1) for substitution of $x = 8$ into their equation.*

$y = 10 \ (10.0)$ (A1)(ft) (C2)

> *Note: Follow through from their answer to part (b).*

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3.

(a) line passes through (–2, 0)   (A1)
line is straight   (A1)
negative gradient (line must be straight for mark to be awarded)   (A1)
correct gradient (line must be straight for mark to be awarded)   (A1) (C4)

(b) $y – 0 = –3(x + 2)$ **or** $3x + y = 3(–2) + 1(0)$ **or** $y = –3x + c$ *etc*   (M1)
$3x + y = –6$ (or equivalent)   (A1)(A1)(A1) (C4)

> *Note: Award (C4) ft for y = –3x + candidate's y-intercept (or*
> *equivalent).*
> *Otherwise award:*
> *(A1) for y with = in a linear equation,*
> *(A1) for y = –3x or y + 3x seen or for m = –3*
> *(A1) for candidate's y-intercept included in a linear expression.*
> ***Do not** ft candidate's gradient if it is wrong in the diagram, no*
> *mark for stand alone –3x*

[8]

4. (a) gradient $= \dfrac{-4}{3}$ or –1.33(3 s.f.)   (A1) (C1)

(b) $y = \dfrac{-4}{3}x + 4$ (A1) (C1)

OR $4x + 3y – 12 = 0$
OR equivalent form

> *Note: the y-intercept must be 4, allow follow through from*
> *part (a)*

(c) $y = \dfrac{-4}{3}x – 4$ (M1)

> *Note: award (M1) for y-intercept as –4*

$4x + 3y + 12 = 0$ or $\dfrac{4}{3}x + y + 4 = 0$ (A1) (C2)

[4]