Fully-Worked Solutions

PRACTICE 10

Section A

1 QR = Horizontal distance
PQ = Vertical distance
Answer: **B**

2 Angle of inclination of JL is the largest.
Answer: **A**

3 Gradient $= \dfrac{\text{Vertical distance}}{\text{Horizontal distance}}$
$= \dfrac{8}{3}$
Answer: **D**

4 Gradient $= \dfrac{7-(-5)}{6-2}$
$= \dfrac{12}{4}$
$= 3$
Answer: **C**

5 Gradient $= \dfrac{-15-5}{2-(-3)}$
$= -\dfrac{20}{5}$
$= -4$
Answer: **A**

6 Gradient $= -\dfrac{8}{12}$
$= -\dfrac{2}{3}$
Answer: **B**

7 Gradient $= -\dfrac{-12}{6}$
$= 2$
Answer: **D**

8 Gradient of $PQ = 0$
$\dfrac{y-5}{12-8} = 0$
$y - 5 = 0$
$y = 5$
Answer: **C**

9 Straight line SQ is the steepest.
Answer: **C**

10 Gradient $= -3$
$-\dfrac{12}{x} = -3$
$-3x = -12$
$3x = 12$
$x = 4$
Answer: **B**

11 Gradient $= \dfrac{2}{5}$
$\dfrac{-y}{-10} = \dfrac{2}{5}$
$y = \dfrac{2}{5} \times 10 = 4$
Answer: **C**

12 Gradient $= -4$
$\dfrac{2-(-4)}{m-3} = -4$
$6 = -4(m-3)$
$6 = -4m + 12$
$4m = 6$
$m = \dfrac{6}{4} = \dfrac{3}{2}$
Answer: **B**

13 Gradient $= \dfrac{2}{3}$
$-\dfrac{y}{6} = \dfrac{2}{3}$
$y = \dfrac{2}{3} \times (-6)$
$= -4$
Answer: **A**

Section B

1 (a) (i) Horizontal distance → 12 m

(ii) Vertical distance → 5 m

13 m

(b) (i) Gradient $= \dfrac{\text{Vertical distance}}{\text{Horizontal distance}}$
$= \dfrac{3}{4}$

(ii) Gradient $= \dfrac{\text{Vertical distance}}{\text{Horizontal distance}}$
$= \dfrac{15}{8}$

2 (a) (i) Gradient of $PQ = \dfrac{-7-8}{2-(-3)}$
$= \dfrac{-15}{5}$
$= -3$

(ii) Gradient of $RS = \dfrac{-1-5}{6-9}$
$= \dfrac{-6}{-3}$
$= 2$

(b) (i) Gradient $= -\frac{10}{5}$

$= -2$ [✓]

(ii) Gradient $= -\frac{-4}{8}$

$= \frac{1}{2}$

(iii) Gradient $= -\frac{-6}{-3}$

$= -2$ [✓]

3 (a) ✗ (b) ✓ (c) ✗ (d) ✓

Section C

1 (a) (i) 24 cm (ii) 7 cm

(b) (i) 15 (ii) 6

(iii) Gradient $= \frac{y\text{-intercept}}{x\text{-intercept}}$

$= -\frac{6}{15}$

$= -\frac{2}{5}$

(c) (i) $OP = \frac{5}{3}\,OR$

$= \frac{5}{3} \times 6$

$= 10$

$\therefore P(-10, 0)$

(ii) $R(0.\ 6)$

$S = \left(\frac{-10+0}{2}, \frac{0+0}{2}\right)$

$= (-5, 0)$

$Q(-10, 6)$

Gradient of QS

$= \frac{6-0}{-10-(-5)}$

$= -\frac{6}{5}$

2 (a) Vertical distance = 4

Horizontal distance = 8

Gradient $= \frac{4}{8}$

$= \frac{1}{2}$

(b) (i) Gradient $= -3$

$\frac{15-3}{-2-k} = -3$

$12 = -3(-2-k)$

$12 = 6 + 3k$

$3k = 6$

$k = 2$

(ii) $P(-8, 0)$, $Q(0, -4)$

Gradient $= -\frac{-4}{-8}$

$= -\frac{1}{2}$

(c) $OK = 8$, $JK = 17$, $OJ = 15$, $KL = 10$, $OL = 6$

(i) Gradient of $JK = -\frac{8}{-15}$

$= \frac{8}{15}$

(ii) Gradient of $KL = -\frac{8}{6}$

$= -\frac{4}{3}$