Year 9 Linear and Quadratic Graphs – Developing

ANSWER KEY HappyKids.fit

Answers and worked solutions · 10 questions

A. Use graphs

1. y = −(1/3)x − 1

It crosses the y-axis at (0, −1), so c = −1

From (−3, 0) to (3, −2): gradient = −2 ÷ 6 = −1/3, so y = −(1/3)x − 1

2. 2x + 3y = 40

Total = cost of the x items + cost of the y items

2x + 3y = 40

3. y = 7x + 32

The fixed amount is the y-intercept and the rate is the gradient

y = 7x + 32

4. 30 km/h; 60 minutes

Speed = distance ÷ time = gradient. Out: 60 km in 2 h = 30 km/h; back: 60 km in 1.5 h = 40 km/h

The flat part shows the stop: 1 h = 60 minutes

5. 27 g

Mass = density × volume

2.7 × 10 = 27 g

6. 6480 pages

Rate: 540 ÷ 5 = 108 pages per minute

In 60 minutes: 108 × 60 = 6480 pages

7. x = 6 or x = −6

$x^2 = 31 + 5 = 36$

x = 6 or x = −6

8. y = (3/4)x + 1/4; gradient 3/4

Add 3x: 4y = 3x + 1

Divide by 4: y = (3/4)x + 1/4

9. Mistake: on the y-axis x = 0, so 3y = 18, and y is not 18. Correct: (0, 6)

Error: on the y-axis x = 0, so 3y = 18, and y is not 18

3y = 18

y = 6, so the point is (0, 6)

10. curves: none; steepest line: y = −3x + 3

An equation with x^2 gives a curve; one with only x and y gives a straight line

Rearrange to y = mx + c to compare gradients and intercepts

curves: none; steepest line: y = −3x + 3