Year 9 Equations and Inequalities – Developing

ANSWER KEY HappyKids.fit

Answers and worked solutions · 10 questions

A. Use equations and inequalities

1. **C = 6g + 22**

Data costs 6 × g = 6g

Add the monthly charge: C = 6g + 22

2. **V = 8b²**

Volume = area of base × height

= b² × 8 = 8b²

3. **2(2x + 6 + x − 1) = 46; x = 6, so the rectangle is 18 cm by 5 cm**

2(3x + 5) = 46

3x + 5 = 23; x = 6

4. **33/(x + 1) = 11; x = 2**

33/(x + 1) = 11

x + 1 = 33 ÷ 11 = 3; x = 2

5. **adult $13, child $4**

3a + 2c = 47 and 1a + 1c = 17

Eliminate one letter, solve, then substitute back: adult $13, child $4

6. **x = 2, y = 1**

The solution is the point where the two lines cross

They cross at (2, 1)

Check: y = 2x − 3 and x + y = 3 are both true there

7. **2(x + 5 + 7) < 43; x = 9 (a perimeter of 42 cm)**

2(x + 12) < 43

x + 12 < 21 1/2, so x < 9 1/2; Largest whole number: 9

8. **x = 10**

Multiply both sides by x: 40 = 4x

x = 40 ÷ 4 = 10

9. **x > 6**

Subtract 6: −5x < −30

Divide by −5 and reverse the sign: x > 6

10. **Mistake: dividing by a negative number reverses the inequality. Correct: x < −2**

−4x > 8

Error: dividing by a negative number reverses the inequality

x < −2