



Name... **ANSWERS**

Q1. (a) Work out 127×35

$$\begin{array}{r} 127 \\ \times 35 \\ \hline 635 \\ 3810 \\ \hline 3810 \\ + 635 \\ \hline 4455 \end{array}$$

(b) Work out $23.7 - 2.3 \times 8$ BIDMAS
 Answer
 $23.7 - (2.5 \times 8) = 23.7 - 20$

(c) Work out 10% of 52
 $52 \div 10 = 5.2$
 Answer
 $10 + \frac{3}{15} = \frac{13}{15}$

(d) Write down the answer to $\frac{10}{15} + \frac{3}{15}$ common denominator = 15
 Answer
 29.8×4.1 round to 1sf
 $\frac{120}{0.2} = 600$

Q2 Work out an estimate for 29.8×4.1 round to 1sf
 $\frac{120}{0.2} = 600$
 Answer
 $35x - 3 = -105$
 Answer -105

(3 marks)

Q3. (a) Given that $x = 13$
Write down the value of x^2

Answer... $13^2 = 169$

(1)

(b) Given that $y^2 = 125$
Write down the value of y .

Answer... $\sqrt[3]{125} = 5$

(1)
(Total 2 marks)

Q4. (a) Simplify $a + a + a$

Answer... $3a$

(1)

(b) Simplify $8b + 3 - 2b + 7$

$8b - 2b = 6b$
 $3 + 7 = 10$
 Answer... $6b + 10$

(2)

(c) Expand and simplify $2(a + 2b) + 3(a - 4b)$

$2a + 4b + 3a - 12b$
 $2a + 3a = 5a$
 $4b - 12b = -8b$
 Answer... $5a - 8b$

(3)
(Total 6 marks)

Q5. Given that $a = 7$, $b = 5$ and $c = -3$

(a) Work out the value of $a + 2b + 3c$

$7 + 2(5) + 3(-3)$
 $= 7 + 10 - 9 = 8$
 Answer... 8

(2)

(b) Work out the value of abc

$7 \times 5 \times -3$
 $35 \times -3 = -105$
 Answer -105

(2) (Total 4 marks)

Q6. (a) Solve $5x - 9 = 3x + 11$

$$2x - 9 = 11$$

$$2x = 20$$

Answer $x = 10$

(2)

(b) Solve the inequality $3x + 7 > x + 8$

$$2x + 7 > 8$$

$$2x > 1$$

$$x > \frac{1}{2}$$

Answer $x > \frac{1}{2}$

(2) (Total 4 marks)

Q7. Work out $1\frac{2}{3} \times 4\frac{1}{5}$

Give your answer in its simplest form.

improper fraction $\frac{8}{3} \times \frac{21}{5} = \frac{7}{1} = 7$

[2 marks]

Answer

Q8. A packet of crisps weighs 34 grams to the nearest gram. A multipack of crisps contains 10 packets.

Work out the least and greatest weights of the multipack. (You can ignore the weight of the multipack wrapper.)

$$33.5 \leq c < 34.5$$

$$33.5 \times 10 = 335$$

$$34.5 \times 10 = 345$$

Answer Least 335 grams
Greatest 345 grams

(Total 2 marks)

Q9 (a) Write $\frac{11^{13} \times 11^3}{11^7}$ as a single power of 11

$$11^{16} \div 11^7 = 11^9$$

[2 mark]

Answer 11^9

(b) Write $(4^3)^5$ as a single power of 2

$$2^2 = 4 \quad ((2^2)^3)^5 = 2 \times 3 \times 5 = 30$$

[2 mark]

Answer 2^{30}

Q10.

$$A = \frac{h(x+10)}{2}$$

$$A = 27$$

$$h = 4$$

Work out the value of x

$$27 = \frac{4(x+10)}{2} \quad \times 2 \quad 14 = 4x$$

$$54 = 4(x+10)$$

$$54 = 4x + 40$$

$$14 = 4x$$

$$x = 3.5$$

(Total 4 marks)

Q11. A builder has 7200 kg of sand.

(a) Write 7200 kg in grams. Give your answer in standard form.

$$7200 \times 1000 = 7,200,000$$

Answer 7.2×10^6

(1 mark)

- (b) One grain of this sand weighs 0.00006 g.
Write the weight of one grain of sand in standard form.

Answer 6×10^{-4} g (1)

(Total 2 marks)

- Q12. A spice mix contains coriander and cumin in the ratio $\frac{1}{2}$ cup : $\frac{1}{4}$ cup

A cup of coriander is 80 grams.
A cup of cumin is 100 grams.

Work out the mass of 6 cups of the spice mix.

$$\begin{aligned} & \times 4 \quad \frac{1}{2} : \frac{1}{4} \times 4 \\ & \frac{4}{2} : 1 \Rightarrow 2 : 1 = \frac{4:2}{6 \text{ cups}} \\ & \begin{array}{r} 4 \times 80 = 320 \\ 2 \times 100 = 200 \\ \hline 520 \end{array} \end{aligned}$$

Answer 520 grams [4 marks]

- Q13 Simplify fully $\frac{6pe}{15pe^2}$
Circle your answer.

$$\frac{6e}{15} \quad \frac{2e}{5} \quad \frac{2}{5e}$$

$$\frac{6}{15} = \frac{2}{5}$$

[1 mark]

Q14.

- (a) Factorise $4x + 10y$

$$2(2x + 5y) \quad (1)$$

- (b) Factorise $x^2 + 7x$

$$x(x + 7) \quad (1)$$

- (c) Expand $x^2(x + 5)$

$$x^3 + 5x^2 \quad (2)$$

Q15a) Expand and simplify $(x + 4)(x + 6)$ (4 marks)

$$x^2 + 4x + 6x + 24$$

$$x^2 + 10x + 24 \quad (2)$$

b) Expand and Simplify $(x - 3)(x + 5)(x - 2)$

$$x^2 - 3x + 5x - 15$$

$$(x^2 + 2x - 15)(x - 2)$$

$$x^3 - 19x + 30 \quad (3)$$

$$x^3 - 2x^2 + 2x^2 - 4x - 15x + 30$$

Solve the equations

$$4(-2) - 2y = -18$$

$$3x + 5y = 19 \times 2$$

$$4x - 2y = -18 \times 5$$

$$6x + 10y = 38$$

$$+ 20x - 10y = -90$$

$$26x = -52$$

$$x = -2$$

$$x = -2$$

$$y = 5$$

(4 marks)

END OF TEST

