**1**     Work out    $76 \times 24$

**[3 marks]**

$76 \times 20$   +   $76 \times 4$

$= 1520$ ①   +   $304$ ①

$= 1824$ ①

Answer          $1824$

**2 (a)** Work out    1.86 ÷ 6

$$0.31$$
$$6\overline{)1.86}$$
$$-\ 1.8\downarrow$$
$$.6$$
$$-\ 6$$

**[1 mark]**

Answer _____ 0.31 ① _____

**2 (b)** Work out    0.4 × 0.2

**[1 mark]**

Answer _____ 0.08 ① _____

**3**

| Rulers |
|---|
| 85p each |

| Pens |
|---|
| £3.50 each |

Jenny buys 5 rulers and 2 pens.

She works out how much she should pay.

$$5 \times 85p = £4.25$$
$$2 \times £3.50 = £6.10$$
$$\text{Total} = £10.35$$

Jenny's total is wrong.

What mistake has she made?

Include the correct total in your answer.

**[2 marks]**

Mistake made ___2 × £3.50 should be £7.00___ ①

Correct total £ ___11.25___ ①

**4**      Here are three calculations, A, B and C.

|           A           |           B           |            C            |
|:---------------------:|:---------------------:|:-----------------------:|
| $100 \times 20\,000$  | 1 million $\div$ 2    | $4 \times 100\,000$     |

Put the calculations in order.

Start with the calculation that has the smallest answer.

You **must** show the answer to each calculation.

**[3 marks]**

A : $100 \times 20000 = 2\,000\,000$  ①

B : $1\,000\,000 \div 2 = 500\,000$

C : $4 \times 100\,000 = 400\,000$  ①

Smallest     C

         B    ①

Largest     A

**5**     Simplify     $8a - 3a + a$

Circle your answer.

**[1 mark]**

$4a$          $6a$ ①          $5 + a$          $8a - 3a^2$

**6**     A shop has this offer.

> £5 reduction if you spend more than £100
>
> or
>
> £10 reduction if you spend more than £150
>
> or
>
> £20 reduction if you spend more than £200

At the shop, dresses cost £42 each.

Amira buys 3 dresses.

Bobbi buys 5 dresses.

How much **more** than Amira does Bobbi pay?

**[3 marks]**

Amira : £42 × 3 = £126  (1)

£126 - £5 = £121

Bobbi : £42 × 5 = £210  (1)

£210 - £20 = £190

190 - 121 = 69  (1)

Answer  £____69____

**7** The cost of a taxi journey is

£3 plus £2 per mile.

$3 + 6(2) = 15$

Circle the cost of a journey of 6 miles.

**[1 mark]**

£5 £12 £15 £30

①

**8**

$c = 250 - 16^2$

$d = \dfrac{18 \times 14}{-28}$

Work out the value of $c \times d$

**[2 marks]**

$C = 250 - 256 = -6$

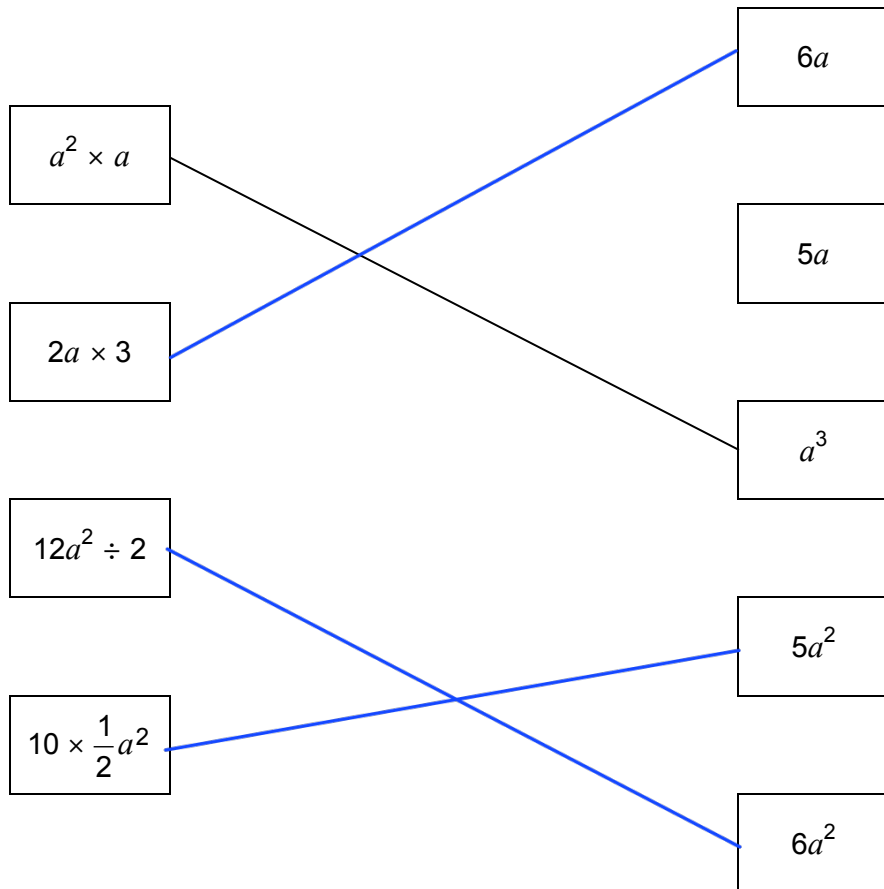$d = \dfrac{252}{-28} = -9$

$C \times d = -6 \times -9$

$= 54$

Answer $\underline{\phantom{xx}54\phantom{xx}}$ ②

**9**      Match each expression in Column P with the equivalent expression in Column Q.

One has been done for you.

**[3 marks]**

**Column P**                                           **Column Q**

$a^2 \times a$

$2a \times 3$

$12a^2 \div 2$

$10 \times \frac{1}{2}a^2$

$6a$

$5a$

$a^3$

$5a^2$

$6a^2$

③

**10**     Circle the expression that can be written as $3cd$

**[1 mark]**

$3 + c + d$          $c + c + c + d$          $c \times c \times c \times d$          $3 \times c \times d$

**11 (a)** Simplify $5x^2 - x^2$

**[1 mark]**

Answer    $4x^2$ ①

**12**    At a school there are six lessons in a day.

In total, the six lessons last for five hours.

**12 (a)**    Assume that each lesson lasts the same amount of time.

How many minutes long is the final lesson?

**[2 marks]**

5 hours x 60 = 300 minutes ①

300 mins ÷ 6 = 50 minutes

Answer    50    ①    minutes

**12 (b)**    In fact, the first lesson of the day lasts longer than the other lessons.

The other lessons last the same amount of time.

What does this tell you about the length of the final lesson?

Tick **one** box.

**[1 mark]**

☑ ①    It is shorter than the answer to part (a)

☐    It is the same as the answer to part (a)

☐    It is longer than the answer to part (a)

**13** A bottle contains 1.5 litres of water.

650 millilitres of the water is poured into a jug.

How much water is left in the bottle?

State the units of your answer.

**[3 marks]**

$1.5 \times 1000 = 1500$ millilitres ①

$1500 - 650 = 850$

①

Answer     850 millilitres ①

**14**     Circle the answer to     $0.02 \times 100$

**[1 mark]**

0.2                    2                    20                    200

**15**     Circle the expression that is equal to     $x + x + x - x + x$

**[1 mark]**

$x$                    $2x$                    $3x$                    $4x$

**16**      Work out      $(-8) \times 5$

**[1 mark]**

Answer     $-40$      ①

**17**     Here is a calculation.

$$31 \times 84 = 2604$$

You can use the calculation to help answer the following questions.

**17 (a)**   Work out   $2604 \div 84$

**[1 mark]**

Answer     **31**     ①

**17 (b)**   Work out   $3.1 \times 8.4$

**[1 mark]**

Answer     **26.04**     ①

**17 (c)**   Work out   $31 \times 85$

**[2 marks]**

**2604 + 31 = 2635**     ①
①

Answer     **2635**

**18** Complete the bank statement.

**[3 marks]**

| Date | Description | Credit (£) | Debit (£) | Balance (£) |
|------|-------------|------------|-----------|-------------|
| 01/05/2020 | Starting balance | | | 670.43 |
| 08/05/2020 | Salary | 2156.75 | | 2827.18 ① |
| 11/05/2020 | Water bill | | 48.97 | 2778.21 ① |
| 18/05/2020 | Mortgage payment | | 1135.72 ① | 1642.49 |

**19**    Point A is 217 metres **above** sea level.

Point B is 145 metres **lower** than point A.

Point C is 59 metres **below** sea level.

How much **higher** is point B than point C?

**[3 marks]**

*A*

217 -145

217

*B*

Sea level

59

*C*
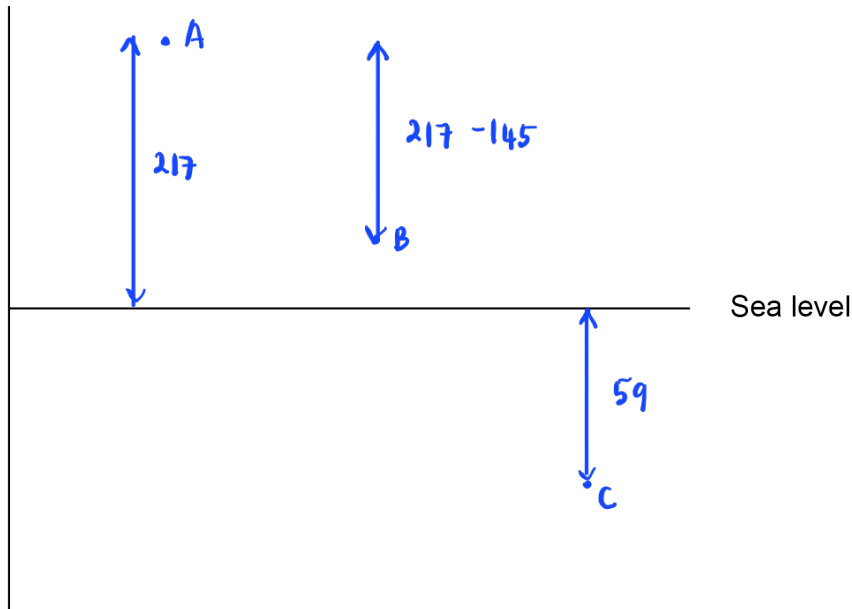
B : 217 - 145 = 72 ①

B - C : 72 - (-59) ①

= 131 ①

Answer   131   metres

**20**   School A has 72 tutor groups.

Each group has 28 students.

School B has 16 tutor groups.

Each group has 18 students.

Show that   $\dfrac{\text{number of students at school A}}{\text{number of students at school B}}$   is a whole number.

**[2 marks]**

A : 72 × 28 = 2016 ①

B : 16 × 18 = 288

$\dfrac{2016}{288}$ = 7   ①

**21** **(a)** Circle the answer to    150 ÷ 5    = 30

**[1 mark]**

3          30          300          3000

**21** **(b)** Circle the answer to    5 − 7 = −2

**[1 mark]**

−12          −2          2          12

**21** **(c)** Circle the answer to    −3 × 3 = −9

**[1 mark]**

−9          −6          6          9

**22** **(a)** Work out $60 \div 2 + 4$

**[2 marks]**

$$= \frac{60}{2} + 4$$

$$= 30 + 4$$

$$= 34$$

Answer ___34___ ②

**23** How many hours are there in 5 days?     $5 \times 24 = 120$

Circle your answer.

**[1 mark]**

35          120          150          300

**24** The masses of some puppies were recorded.

The smallest mass was 7 kilograms 200 grams.

The range of the masses was 650 grams.

What was the **largest** mass?

Give your answer in kilograms and grams.

**[2 marks]**

largest = 7 kg 200 g + 650 g ①

≈ 7 kg 850 g ①

Answer ___7___ kilograms ___850___ grams

**25** Show that 2125 can be written as

a cube number **multiplied** by a prime number between 10 and 20

**[2 marks]**

prime number : 11, 13, 17, 19

2125 is only divisible by 17.

2125 ÷ 17 = 125

$\sqrt[3]{125}$ = 5 ②

∴ $5^3 \times 17$ = 2125

**26 (a)** Work out   (–4) × (–3)

**[1 mark]**

12

Answer   12   ①

**26 (b)** Work out   6 × (–5)

**[1 mark]**

– 30

Answer   – 30   ①

**27**    Match each expression on the left with the simplified expression on the right.

One has been done for you.

**[4 marks]**

**28 (a)** The cost of a TV streaming service is

£6 per month for the first 4 months

then

£11 per month for the rest of the year.

Work out the **total** cost for the year.

**[2 marks]**

$6 \times 4 + 11 \times 8$ ①

$= 24 + 88$ ①

$= 112$ ①

Answer £ _____112_____

**28 (b)** A TV series has ten episodes.

Nine episodes are each 50 minutes long.

One episode is 1 hour 42 minutes long.

Work out the **total** length of the series.

Give your answer in hours and minutes.

**[3 marks]**

$9 \times 50 = 450$ ①

$\dfrac{450}{60} = 7.5$ hours

$= 7$ hours $30$ minutes ①

$7$ hours $30$ mins $+$ $1$ hour $42$ mins

$= 9$ hours $12$ mins

①

Answer _____9_____ hours _____12_____ minutes

**29**     Three oranges have masses of 60 g, 70 g and 85 g

Show that their **total** mass is between $\frac{1}{5}$ and $\frac{1}{4}$ of a kilogram.

**[3 marks]**

$60 + 70 + 85 = 215 \text{ g} = 0.215 \text{ kg}$  ①

$\frac{1}{5} \times 1 \text{ kg} = 0.2 \text{ kg}$  ①     $\frac{1}{4} \times 1 \text{ kg} = 0.25 \text{ kg}$  ①

$0.12 \text{ kg} < 0.215 \text{ kg} < 0.25 \text{ kg}$

**30**   200 students were each asked about the monthly cost of their phone contract.

Here are the results.

|  | Less than £25 | £25 or over |
|---|---|---|
| **School students** | 40 | 90 |
| **College students** | 32 | 38 |

**30   (a)**   How many **more** school students than college students were asked?

**[2 marks]**

school : 40+90 = 130     college : 32 + 38 = 70 ①

130 - 70 = 60 ①

Answer _____60_____

**31**    Here is a calculation.

$$428 \times 30 = 12\,840$$

Use the calculation to help answer the following questions.

**31 (a)**    Write down the answer to    $12\,840 \div 428$

**[1 mark]**

Answer    **30**    Ⓘ

**31 (b)**    Circle the answer to    $214 \times 30$

**[1 mark]**

1284            3210            (6420)    Ⓘ    25 680

**32 (a)** Write a number in the box to make the calculation correct.

**[1 mark]**

$$16 \div \boxed{1000} = 0.016$$

**32 (b)** Write a number in the box to make the calculation correct.

**[1 mark]**

$$18.4 + 3.9 + \boxed{4.7} = 27$$

22.3

$$27 - 22.3 = 4.7$$

**32 (c)** Write a fraction in the box to make the calculation correct.

**[1 mark]**

$$\frac{1}{2} \times \boxed{\frac{1}{4}} = \frac{1}{8}$$

**32 (d)** Write the **same** number in both boxes to make the calculation correct.

**[1 mark]**

$$\boxed{19} \times \boxed{19} = 361$$

$$x^2 = 361$$

$$x = \sqrt{361}$$

$$= 19$$

**33** To travel to a festival, a group of people will hire a minibus.

This formula has all costs in £

$$\text{Cost per person} = \frac{165 + \text{cost of the minibus}}{\text{number of people in the group}}$$

**33 (a)** With 12 people in the group, the cost of the minibus will be £567

Work out the cost per person.

**[2 marks]**

$$\text{Cost per person} = \frac{165 + 567}{12} \; ①$$

$$= \frac{732}{12} \quad = 61 \; ①$$

Answer £ _____ 61 _____

**33 (b)** With 15 people in the group, they will hire a different minibus.

The cost per person will be £50

Work out the cost of this minibus.

**[3 marks]**

$$50 = \frac{165 + \text{cost}}{15} \; ①$$

$$\text{cost} = 50 \times 15 - 165$$

$$= 750 - 165 \; ①$$

$$= 585 \; ①$$

Answer £ _____ 585 _____

**34 (a)**

When 5 is added to a negative number, the answer can be **positive**

Give **one** example to show that this is correct.

**[1 mark]**

$5 + (-1) = 4$ ①

**34 (b)**

When 5 is added to a negative number, the answer can be **negative**

Give **one** example to show that this is correct.

**[1 mark]**

$5 + (-6) = -1$ ①

**34 (c)**

When a number is doubled, the answer is always greater than the original number

Give **one** example to show that this is **not** correct.

**[1 mark]**

$(-1) \times 2 = -2$ ①

**35** **(a)** Work out   280 ÷ 7

$$\begin{array}{r} 40 \\ 7\overline{)280} \\ -280 \\ \hline \end{array}$$

**[1 mark]**

Answer   40   ①

**35** **(b)** Work out   1062 − 438

$$\begin{array}{r} 5 \\ 10\cancel{6}2 \\ -\ 438 \\ \hline 624 \end{array}$$

**[2 marks]**

Answer   624   ②

36        Here is a multiplication table.

| ×  | 61   | 63   | 65   | 67   |
|----|------|------|------|------|
| 61 | 3721 | 3843 | 3965 | 4087 |
| 63 | 3843 | 3969 | 4095 | 4221 |
| 65 | 3965 | 4095 | 4225 | 4355 |
| 67 | 4087 | 4221 | 4355 | 4489 |

Use the table to answer the following questions.

36 (a)    Work out    3843 ÷ 63

**[1 mark]**

Answer        61    ✓①

36 (b)    Work out    6.1 × 6.7

$61 \times 67 = 4087$

$6.1 \times 6.7 = 40.87$

**[1 mark]**

Answer        40.87    ✓⓪

36 (c)    Work out    63 × 66

**[2 marks]**

$63 \times 66 = (63 \times 65) + 63$

$63 \times 65 = 4095$

$63 \times 66 = 4095 + 63$    ✓①

$= 4158$

$$\begin{array}{r} 4095 \\ + \quad 63 \\ \hline 4158 \end{array}$$

Answer        4158    ✓①

**37**      $c$ and $d$ are positive numbers.

         $c$ is even.

         $d$ is odd.

Tick a box for each expression.

**[3 marks]**

| | Even | Odd | Cannot tell |
|---|---|---|---|
| $c + d$ | | ✓ ① | |
| $4c$ | ✓ ① | | |
| $\dfrac{c}{2}$ | | | ✓ ① |

**38 (a)** One lettuce costs £1.29

How much do **seven** of these lettuces cost?

**[1 mark]**

£1.29 × 7  =  £9.03

$$\begin{array}{r} 2\,6 \\ 1.29 \\ \times\quad 7 \\ \hline 9.03 \\ \hline \end{array}$$

Answer £  9.03  ✓ ①

**38 (b)** Five cucumbers cost £6.40 in total.

How much do **two** of these cucumbers cost?

**[1 mark]**

1 cucumber = £6.40 ÷ 5 = £1.28

2 cucumbers = £1.28 × 2 = £2.56

$$\begin{array}{r} 1.28 \\ 5\,\overline{)6.40} \\ -5\,\downarrow \\ \hline 1\,4 \\ -10 \\ \hline 40 \\ -40 \\ \hline \end{array}$$

Answer £  2.56  ✓ ①