

Q1.

Here are three expressions.

$$\frac{b}{a}$$

$$a - b$$

$$ab$$

When $a = 2$ and $b = -6$ which expression has the smallest value?

You **must** show your working.

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Answer

(Total 2 marks)

Q2.

Work out the value of $5x + 9y$ when $x = 7$ and $y = -2$

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Answer

(Total 2 marks)

Q3.

$$N = 2a + b$$

a is a two-digit square number.

b is a two-digit cube number.

What is the **smallest** possible value of N ?

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Answer

(Total 3 marks)

Q4.

A gardener uses this formula to work out how much he charges to make a lawn.

$$C = \frac{7(14 + A)}{3}$$

C is the charge in £

A is the area in m^2

He makes a rectangular lawn measuring 12.5 m by 17.6 m

How much does he charge?

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Answer £

(Total 3 marks)

Q5.

a and b are different prime numbers with $a > b$

(a) Give an example to show that $a^2 + b^2$ could be even.

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(1)

(b) Give an example to show that $a^2 + b^2$ could be odd.

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(1)

(Total 2 marks)

Q6. $c = \frac{1}{2}$ $d = \frac{1}{3}$

Work out the value of cd

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Answer

(Total 2 marks)

Q7. A car owner is comparing the cost of repairing her car at two garages.

	Cost of labour per hour	Cost of parts
Garage A	£64	£152
Garage B	£93	£137

This formula is used to work out the total cost at each garage.

Total cost = cost of labour × number of hours + cost of parts

The repair takes $2\frac{1}{2}$ hours.

How much **cheaper** is garage A?

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Answer £

(Total 5 marks)

Q8.(a) Solve $x - 7 = 18$

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$x =$

(1)

(b) Write an equation which has 8 as its solution.

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Answer

(1)

(c) The solution to $2x + a = b$ is $x = 5$

Work out **one** possible pair of values for a and b .

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$a = \dots\dots\dots b = \dots\dots\dots$

(2)
 (Total 4 marks)

Q9.Jade and Ben both have jobs.

Their pay in £ is worked out using this formula.

$$\text{pay} = 8 \times \text{number of hours worked} + \text{bonus}$$

Their bonus is worked out using this table.

Whole number of hours worked	1 to 5	6 to 10	11 to 15	16 to 20
Bonus	£0	£20	£30	£40

(a) Jade worked 7 hours.

Work out her pay.

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Answer £

(3)

(b) Ben is paid £50

How many hours did he work?

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Answer hours

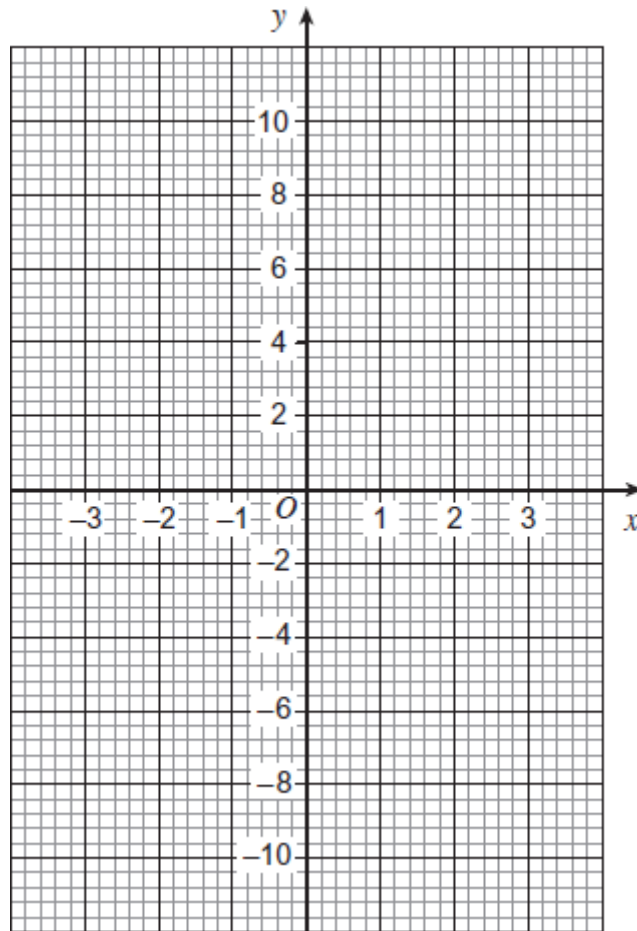
(3)
(Total 6 marks)

Q10.(a) Complete the table for $y = 3x - 1$

x	-3	-2	-1	0	1	2	3
y	-10		-4	-1	2		8

(2)

(b) On the grid draw the graph of $y = 3x - 1$ for values of x from -3 to 3



(2)
(Total 4 marks)

Q11.

$$P = 2L + 3W - 6Y$$

Work out the value of P when $L = 5$, $W = 4$ and $Y = \frac{1}{2}$

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Answer

(Total 3 marks)

Q12.(a) Factorise $x^2 + x$

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Answer

(1)

(b) Work out the value of $x^2 + x$ when $x = -3$

.....

Answer

(2)

(c) n is an **odd** number.

Tick the correct statement.

- $n^2 + n$ is always odd
- $n^2 + n$ is always even
- $n^2 + n$ could be odd or even

Give a reason for your answer.

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(2)
(Total 5 marks)

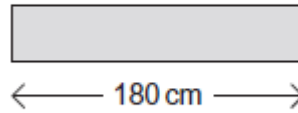
Q13.A farmer is building a fence using posts and beams.

Not drawn accurately

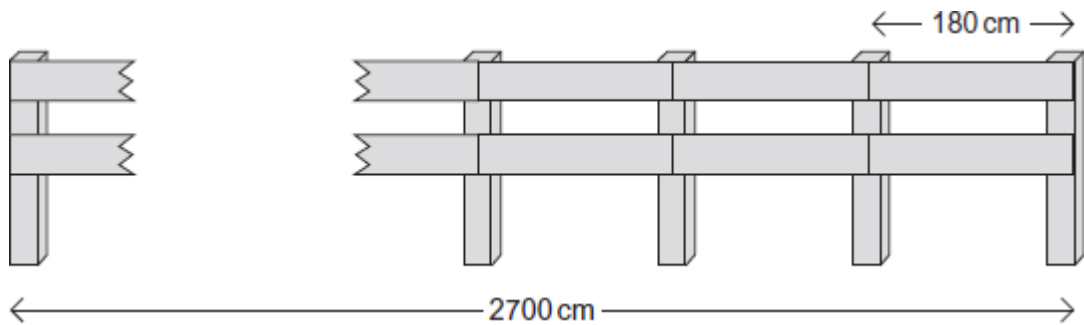
post



beam



The total length of the fence is 2700 cm



(a) How many **beams** and **posts** are in the fence?

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Beams

Posts

(3)

(b) 40 beams and 21 posts are used in another fence.

Use this formula to work out the cost of this fence in £

$$\text{Cost (£)} = 5B + 9P$$

B is the number of beams.

P is the number of posts.

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Answer £

(2)
 (Total 5 marks)

Q14. $P = 2a + 3b$

Work out the value of P when $a = 11$ and $b = 5$

.....

Answer

(Total 2 marks)

Q15.(a) The rule for continuing a sequence is

Double the previous term and add 5

A sequence starts 5 15 35

Work out the next term in this sequence.

Answer

(1)

(b) A different sequence follows the same rule.

Double the previous term and add 5

The **third** term of this sequence is 27.

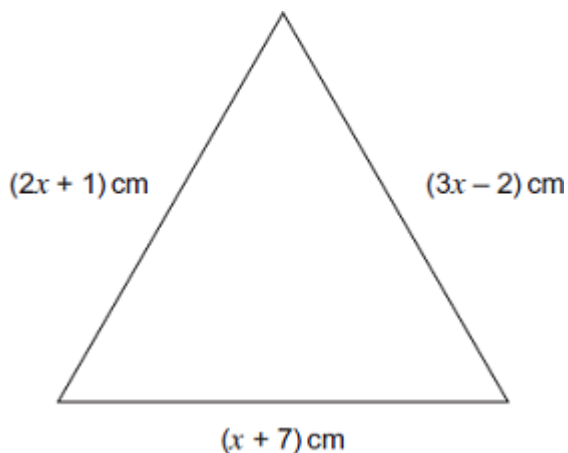
Work out the **first** term.

Answer

(3)
(Total 4 marks)

Q16.

Not drawn accurately



Work out the length of the longest side of the triangle when $x = 5$

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Answer cm

(Total 3 marks)