Name:

Answer all of the questions.   **One Hour – practice paper 2**

No calculators are allowed.
You must show all necessary working, so that incorrect answers may receive some credit.
Try to answer as many questions as you can in the time allowed.

1.   (a)   (i)   What number is 6 more than – 4?

....
[1]

(ii)   What number is 5 less than –1?

....
[1]

(b)   Work out.

(i) -3×-5

....
[1]

(ii) $-3 + -5$

....
[1]

(c)   Write 28.059 14 correct to

2 decimal places,

....
[1]

2. (a)   Work out.

(i)   (16 + 5) ÷ 3

....

....

....

[1]

(ii)   4 + 6 × 3

....

....

....

[1]

(b)   Put one pair of brackets into this equation to make it correct.

$$44 - 26 - 3 + 8 = 7$$

[1]

3.   Maria buys a bag of sweets costing £1.15 and a sandwich costing £1.08.

Work out how much change she receives from £5.

....

....

....

£ ....

[2]

4. Work out.

(a) 9^2

    ....

(b) $7 + \sqrt{25}$

    ....

[2]

(c) $\dfrac{3}{8}$ of 40

    ....

    ....

[2]

(d)   30% of 70

    ....

    ....

[2]

(e)   72 × 24

You must show your working.

    ....

    ....

    ....

    ....

    ....

    ....

[3]

(f) $10^3 + 2^3$

    ....

    ....

    ....

[2]

5. Complete these number machine calculations by filling in the empty boxes.

(i)

$$\boxed{} \rightarrow \boxed{\div 5} \rightarrow \boxed{4}$$

[1]

(ii)

$$\boxed{} \rightarrow \boxed{-1} \rightarrow \boxed{\times 4} \rightarrow \boxed{40}$$
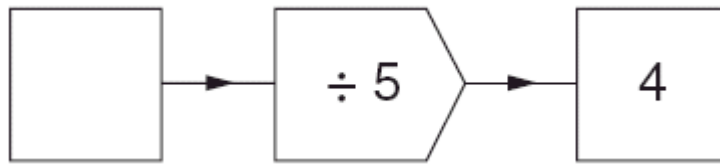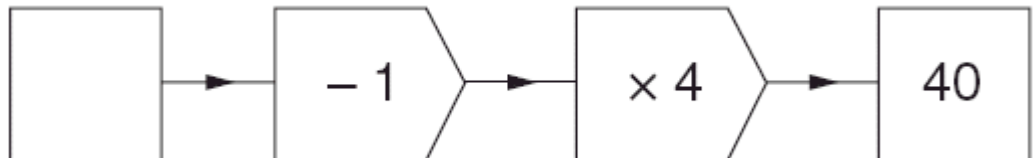
[1]

6. (a)   Complete.

$$\frac{2}{5} = \frac{\boxed{}}{15} = \frac{10}{\boxed{}}$$

[2]

(b)   Work these out.
Give your answers as mixed numbers.

(i) $3 - \dfrac{2}{5}$

....

[1]

7. Calculate the area of this shape.

4·2 m

6·3 m
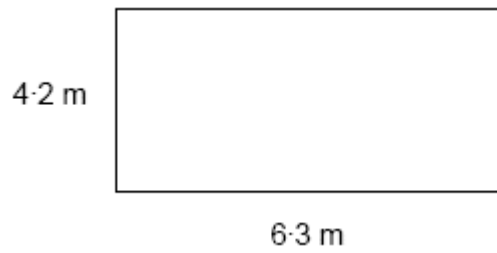
Not to scale

.... m²

[2]

8. As a product of prime factors,

$$24 = 2 \times 2 \times 2 \times 3.$$

(a) Write 40 as a product of prime factors.

....

....

....

[2]

(b) (i) Work out the highest common factor (HCF) of 24 and 40.

....

....

[1]

(ii) Work out the least common multiple (LCM) of 24 and 40.

....

....

[1]

9. Calculate the area of these shapes.

(i)

5 cm

12 cm
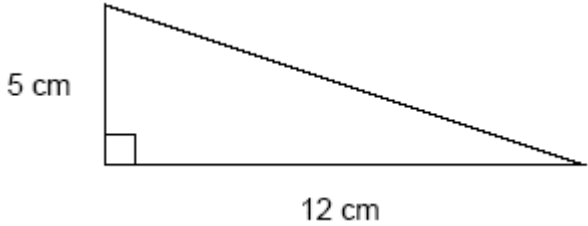
Not to scale

.... cm²

[2]

(ii)

3 m

1 m

80 cm

4 m
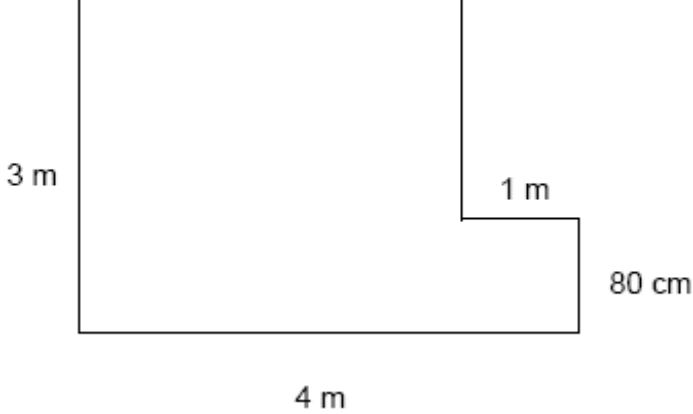
Not to scale

.... m²

[3]

10. (a) Simplify.

$$2xy - 3xy + 4xy$$

....

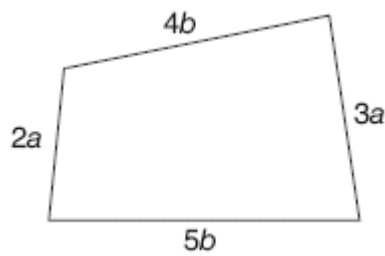..

....

[1]

(b) Find an expression for the perimeter of this shape.
Give your answer as simply as possible in terms of a and b.

....

....

....

....

[2]

(c) Multiply out and simplify.

$$3(2x + 5) + 2(4x - 1)$$

....

....

....

....

[2]

11. Work out.

$$2\frac{2}{3} \times 1\frac{1}{7}$$

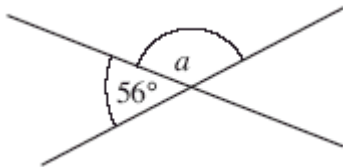Give your answer as a mixed number.
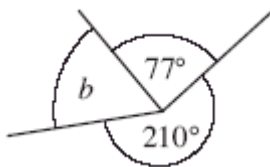
....

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....

[3]

12. Calculate the angles marked with letters in these diagrams.
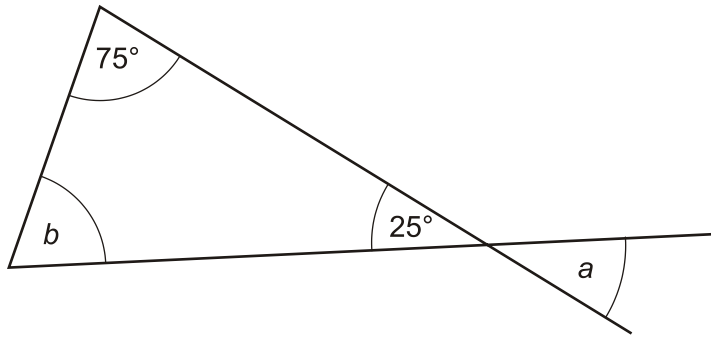

Not to scale

$a = $ ....°

[1]

Not to scale

$b = $ ....°

[2]

13. Find the angles marked with letters. Give reasons for your answers.

Not to scale

a = ... ° because ....

....

[2]

b = ... ° because ....

....

[2]

(c)
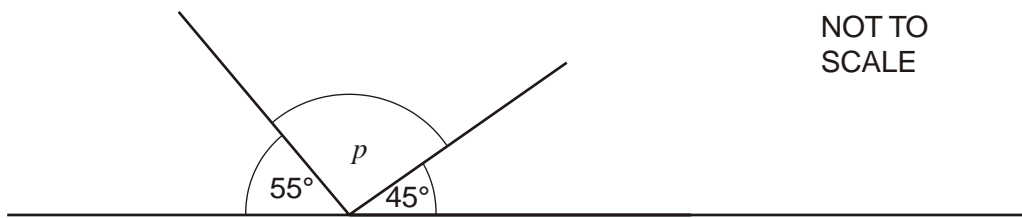
NOT TO SCALE

p = ... ° because ....

....

[2]

(d) Calculate the size of angle *q*.
Give reasons for your answer.
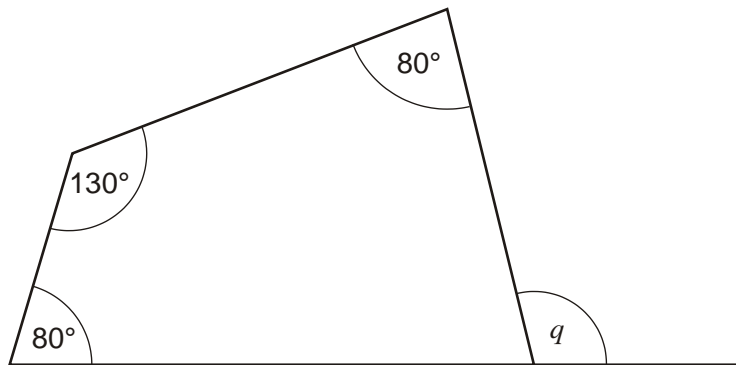
NOT TO
SCALE

....

....

q = ...° because ....

....

....

[3]

14. Solve the equations.

(a) $4z - 1 = 9$

....

....

Answer *z* = ...

(2)

(b) $\dfrac{x}{2} - 3 = 5$

....

....

....

Answer *t* = ...

(2)

(c) $4y + 1 = y + 22$

....

....

....

....

[2]

(d) $5(2x + 1) = 20$

....

....

Answer $x = $ ....

[3]

(e) $4(2x - 3) = 3(5x + 1) + 2$

....

....

....

....

....

[4]

15. (a) Work out the value of $x^2 + 5x$ when

(i) $x = -2$,

....

....

....

[2]

(ii) $x = \dfrac{1}{2}$.

....

....

....

[2]

(b) The formula for the n th term of a number sequence is $3n + 2$.

Work out the **first three** terms of this sequence.

....

....

.... , ... , ...

[2]

(c) Find an expression for the nth term of this series.

6   10   14   18   …

....

[2]

16. (a) Sanjiv has these five numbered discs.

$$\text{(2)} \quad \text{(4)} \quad \text{(5)} \quad \text{(4)} \quad \text{(4)}$$

He takes one without looking.

0   1

a   b   c   d   e   f
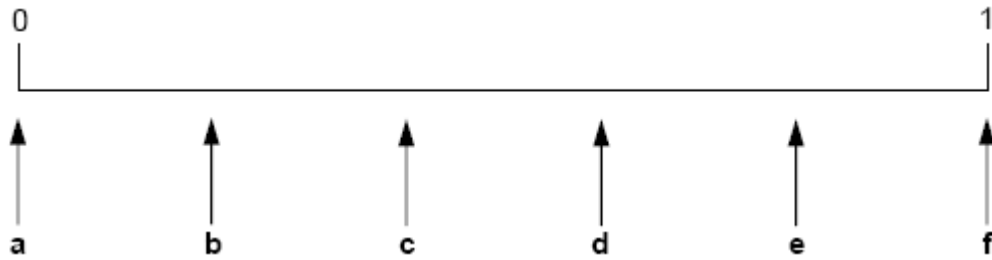
Complete these sentences.

Arrow .... points to the probability that he chooses a **5**.

Arrow **d** points to the probability that Sanjiv chooses a ....

Arrow .... points to the probability that he chooses a number less than 2.

[3]

(b) Katie has these nine numbered discs.

$$\text{(2)} \quad \text{(4)} \quad \text{(5)} \quad \text{(3)} \quad \text{(3)} \quad \text{(3)} \quad \text{(4)} \quad \text{(1)} \quad \text{(4)}$$

She takes one without looking.

What is the probability that

(i) she takes a 3,

....

[1]

(ii) she takes a number less than 6?

....

[1]

17. Rhiannon wishes to make a patio in her garden.
The patio must be **rectangular** and must have a perimeter of exactly 16 m.

    (a)   On the grid below sketch three **different** patios for Rhiannon.

        Scale: 1 cm represents 1 m

[3]

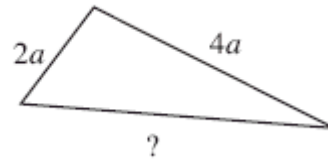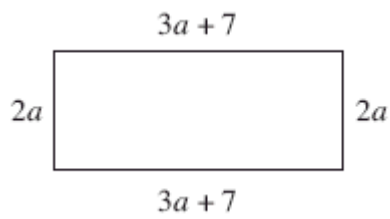(b) Rhiannon will pave her patio using square slabs of side length 1 m.
Each slab costs £3.

Write down the 3 separate costs of paving your three patios

....

....

....

[3]

18.

Not to scale

$3a + 7$

$2a$ $2a$

$3a + 7$

$2a$ $4a$

?

The perimeter of this rectangle is equal to the perimeter of this triangle.

Find an expression for the missing length in the triangle.

....

[3]

19. In triangle ABC,

- AB is *x* cm long
- BC is twice the length of AB
- AC is 10 cm longer than AB.

C

A   *x*   B
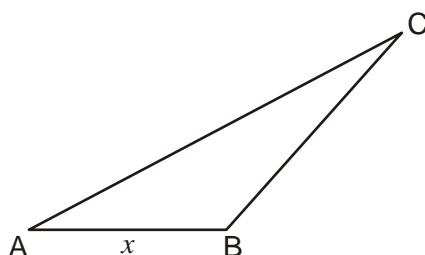
NOT TO SCALE

The perimeter of the triangle is 42 cm.

Write down an equation in *x* and solve it.

Use your answer to find the lengths of the sides of the triangle.

....

....

....

....

....

....

....

....

.... cm, ... cm, ... cm

[5]

The End