1 State whether or not this calculation is correct.

$$18{\cdot}2 \div 0{\cdot}91 = 200$$

Show how you decided.

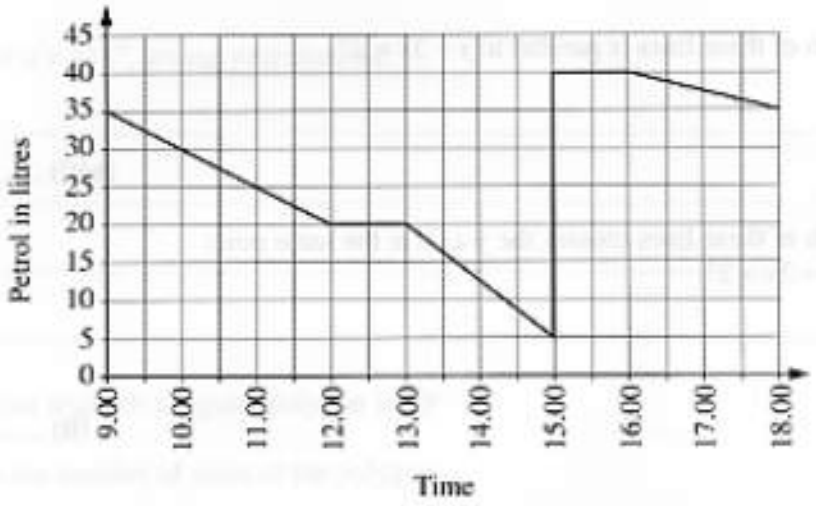
The calculation is ..... because .....

.....

.....[2]

[2]

2 The graph shows how many litres of petrol are left in the tank of Alec's car during a long journey.



(a) Work out the rate that the car was using fuel during the first three hours, stating the units.

(a) ..... [2]

(b) Between which times was the car using fuel at the greatest rate?

(b) Between .....

and ..... [1]

[3]

3 The equation $y - 3x = 2$ represents a straight line.

(a) Rearrange the equation to make y the subject.

(a) ..... [1]

(b) Here are the equations of three more straight lines.

$y = -3x - 4$

$y = 3x - 2$

$y = \frac{1}{3}x + 2$

(i) Which of these lines is parallel to $y - 3x = 2$?

(b)(i) ..... [1]

(ii) Which of these lines crosses the y-axis at the same point as $y - 3x = 2$?

(ii) ..... [1]

3

4 (a) Calculate the reciprocal of 0·8.

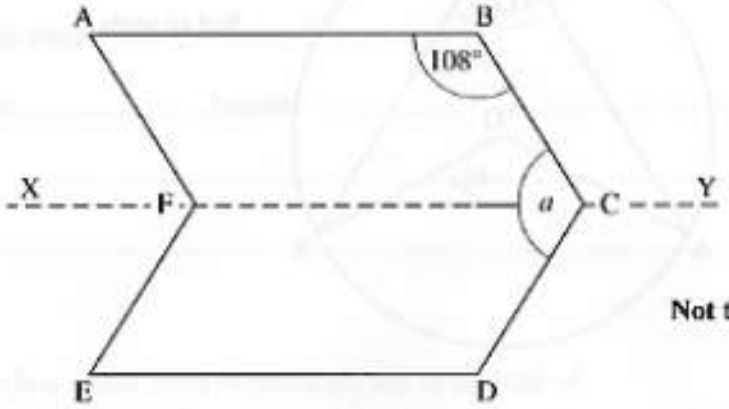
(a) ..... [2]

(b) Calculate $2\frac{3}{4} + 1\frac{2}{3}$.
Give your answer as a mixed number.

(b) ..... [3]

5

5 (a) The shape ABCDEF is made from two congruent parallelograms.
XY is the line of symmetry.



Not to scale

Angle ABC = 108°.

Prove that $a = 144°$, giving your reasons.

.....

.....

.....

..... [2]

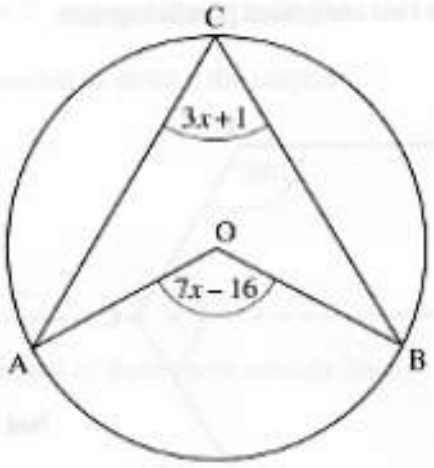
(b) The exterior angle of a regular polygon is 40°.

Calculate the number of sides of the polygon.

(b) ..... [2]

4

6



Not to scale

O is the centre of the circle passing through A, B and C.
Angle AOB = $(7x - 16)°$.
Angle ACB = $(3x + 1)°$.

'The angle at the centre of a circle is twice the angle at the circumference.'

(a) Use this information to write an equation in x.

Solve your equation.

.....

.....

.....

.....

(a) ..... [4]

(b) Work out angles ACB and AOB.

(b) ACB = ... °

AOB = ... ° [1]

[5]

7 The lifetime of 250 Superpower batteries was tested.
Here are the results.

Lifetime	0–1000 hours	greater than 1000 hours
Number of batteries	100	150

(a) Use these figures to estimate the probability that one Superpower battery chosen at random will last more than 1000 hours.

(a) ..... [1]

(b) Playtime toy company buys 2000 Superpower batteries.

Estimate how many of these batteries will last more than 1000 hours.

(b) ..... [2]

3