**Answer ALL TWENTY ONE questions.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

1  (a)  Simplify  $g^6 \times g^4$

.............................................

**(1)**

(b)  Simplify  $k^{10} \div k^3$

.............................................

**(1)**

(c)  Simplify  $(3cd^4)^2$

.............................................

**(2)**

(d)  Solve the inequality  $4x + 7 > 2$

.............................................

**(2)**

**(Total for Question 1 is 6 marks)**

**2** The table shows information about the lengths of time, in minutes, 120 customers spent in a supermarket.

| Length of time ($L$ minutes) | Frequency |
|---|---|
| $20 < L \leqslant 30$ | 6 |
| $30 < L \leqslant 40$ | 26 |
| $40 < L \leqslant 50$ | 31 |
| $50 < L \leqslant 60$ | 40 |
| $60 < L \leqslant 70$ | 17 |

(a) Write down the modal class.

.......................................................

**(1)**

(b) Work out an estimate for the mean length of time spent by the 120 customers in the supermarket.

.......................................................minutes

**(4)**
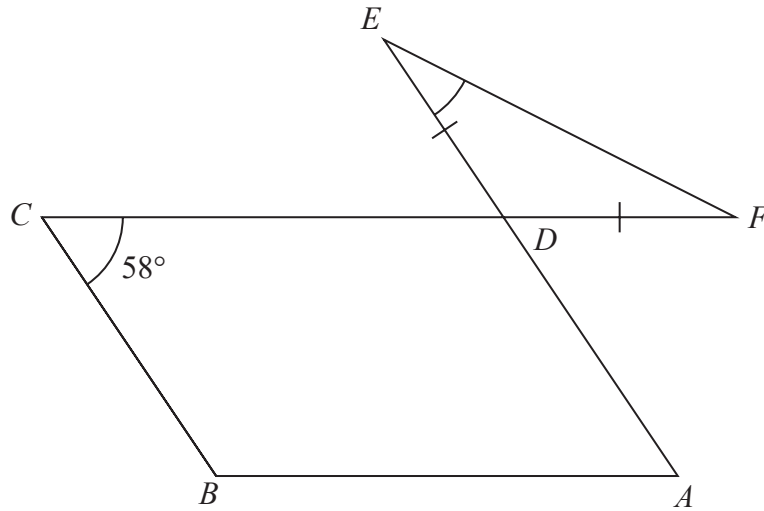
**(Total for Question 2 is 5 marks)**

**3**



Diagram **NOT** accurately drawn

The diagram shows a parallelogram *ABCD* and an isosceles triangle *DEF* in which *DE = DF*

*CDF* and *ADE* are straight lines.
Angle *BCD* = 58°

Work out the size of angle *DEF*.
Give a reason for each stage of your working.

.................................................°

**(Total for Question 3 is 5 marks)**

*Turn over* ▶

**4** Andreas, Isla and Paulo share some money in the ratios 3 : 2 : 5

The **total** amount of money that Isla and Paulo receive is £76 more than the amount of money that Andreas receives.

Andreas buys a video game for £48.50 with some of his share of the money.

Work out how much money Andreas has left from his share of the money when he has bought the video game.

£.......................................................

**(Total for Question 4 is 4 marks)**

**5** Himari's annual salary is 3 130 000 Japanese Yen (JPY).
She gets a salary increase of 4%

(a) Work out Himari's salary after this increase.

.......................................................JPY

**(3)**

Kaito bought a car.
The value of the car when Kaito bought it was 750 000 JPY.
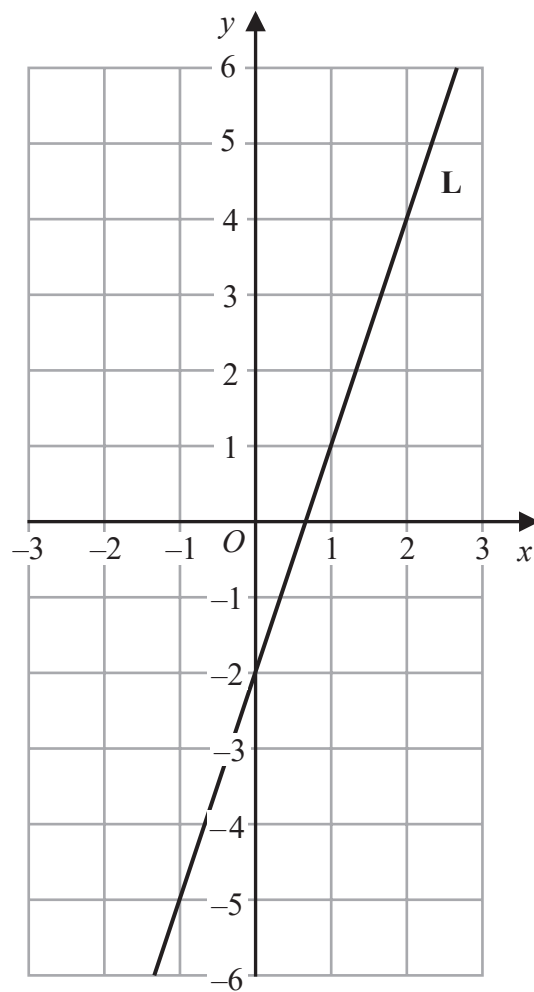At the end of each year, the value of his car had depreciated by 15%

(b) Work out the value of Kaito's car at the end of 3 years.
Give your answer correct to the nearest JPY.

.......................................................JPY

**(3)**

**(Total for Question 5 is 6 marks)**

**6** The line **L** is shown on the grid.



Find an equation for **L**.

.......................................................

**(Total for Question 6 is 2 marks)**

**7** The diagram shows a right-angled triangle.

Diagram **NOT** accurately drawn

3.4 cm

$x°$

4.7 cm
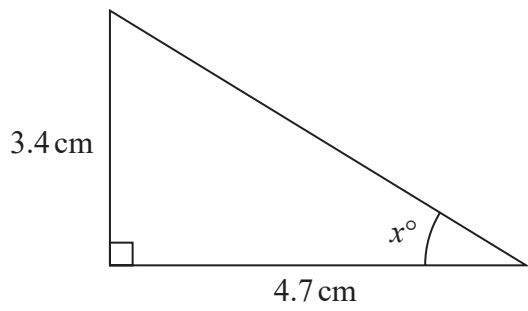
Calculate the value of $x$.
Give your answer correct to one decimal place.

$x = $ ............................................................

**(Total for Question 7 is 3 marks)**