Edu-F | Summer '25 | 2

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Answer **all** questions.

1. (a) Write twelve million three hundred thousand in figures. [1]

12,300,000 ✓

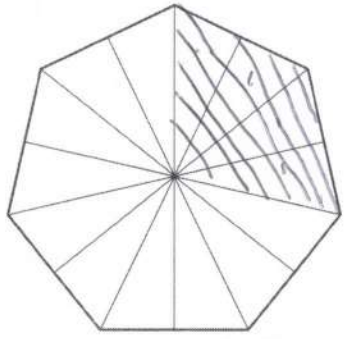
(b) Write these numbers in order of size.
Start with the smallest number. [1]

2·45 2·07 2·6 2·174

2·07 (smallest) 2·174 2·45 2·6 (largest) ✓

(c) Shade $\frac{2}{7}$ of the regular shape shown below. [1]

4/14 ✓



(d) Circle the **incorrect** statement below. [1]

✓ ✓

−12 < −9 −9 < 12 −9 > −12 (−9 < −12) 12 > −9

✓

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03

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2. Edugym offers exercise classes and sells drinks and supplements.
The two tables below show some of the costs.

Exercise Class	Cost per class
Bodymax	£4.75
Circuits	£6.70
Kettlebells	£4.25
Spin	£5.50

Drinks and supplements	Cost
Bottle of water	85p
Isotonic drink	£1.89
Energy gel	£2.29

(a) Last week Henry exercised at Edugym.
He attended a circuits class and a spin class.
He bought a bottle of water and an energy gel.

How much did Henry spend at Edugym last week? [1]

6·7 + 5·5
+0·85 + 2·29 = £15·34 ✓

(b) After an exercise class, Edugym received £13.23 from the sale of isotonic drinks.

How many isotonic drinks were sold? [2]

13·23 ÷ 1·89
= 7 ✓ ✓

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(c) Edugym offer a pay monthly deal for exercise classes.

Pay monthly deal:
£40 per month for unlimited classes

Jade attends three circuits classes, four bodymax classes and two kettlebells classes a month.

Should Jade use the pay monthly deal?

Yes ✓ No ☐

Give the reason for your answer. [2]

3 × 6·7
4 × 4·75 } £47·60 so she'll save £7·60
2 × 4·25

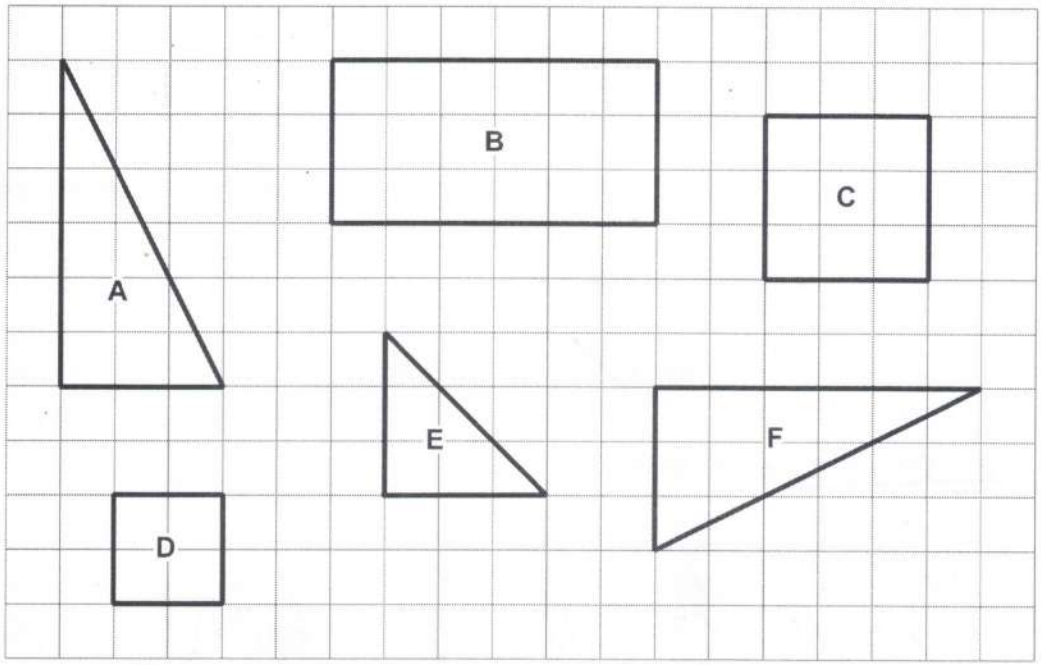
✓ ✓

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05

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3. (a) The grid below shows 6 shapes.



Complete the following sentences about the shapes on the grid. [3]

Shape E has exactly one line of symmetry. ✓

Shape B has rotational symmetry of order two. ✓

Shapes A and F are congruent. ✓

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(b) (i) Calculate the value of x. [2]

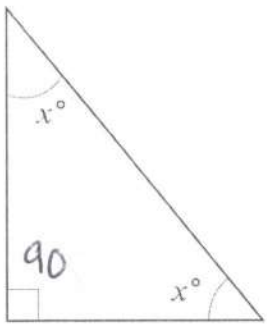


Diagram not drawn to scale

✓ $90 \div 2 = 45$

$x =$ 45 ✓

(ii) Calculate the value of y. [1]

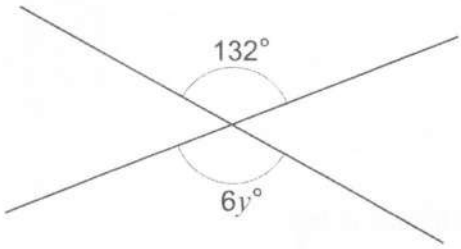


Diagram not drawn to scale

$6y = 132$ $y = 132 \div 6$

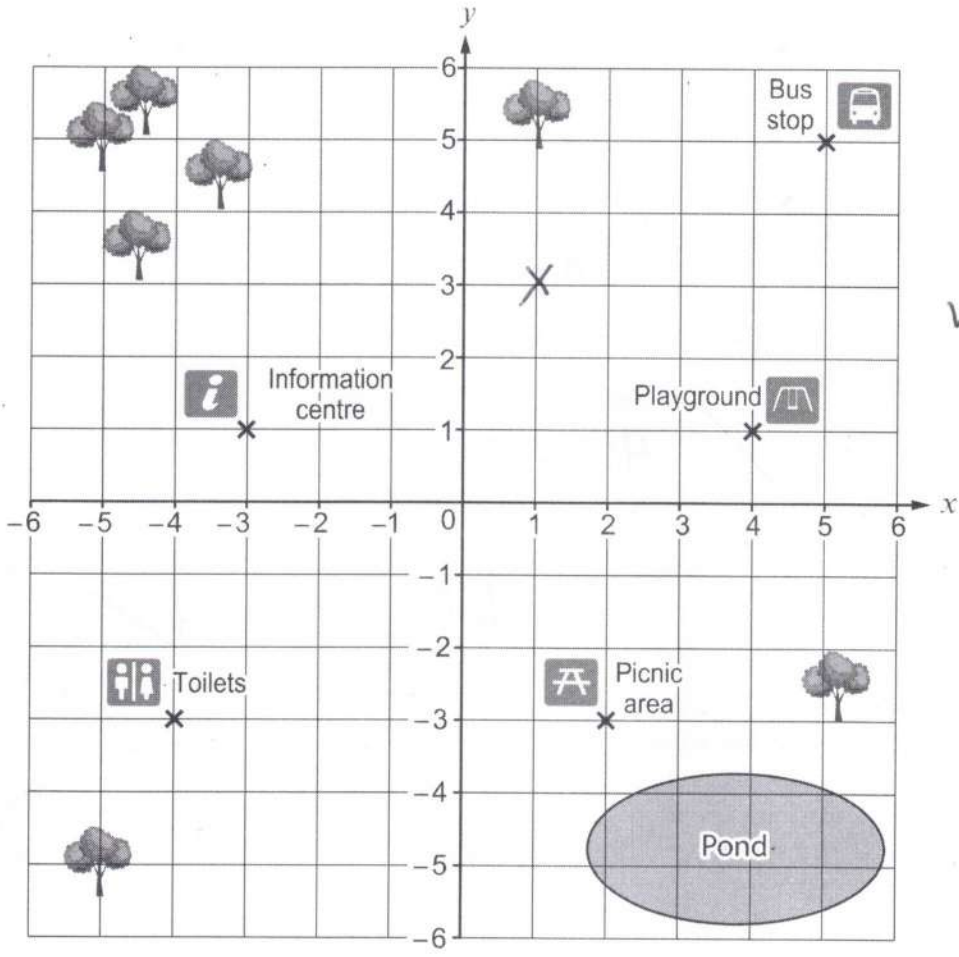
$y =$ 22 ✓

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07

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4. The grid below shows the map of a park.



(a) Write down the coordinates of the playground. [1]

(4 , 1)

(b) There is a climbing wall at the midpoint between the bus stop and the information centre.
Mark with a cross (×) the position of the climbing wall on the map. [1]

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(c) The scale on the map is:

1 cm represents 45 m

Caelan walks directly from the picnic area to the toilets in a straight line.
He walks back to the picnic area along the same straight line.

How far did Caelan walk altogether?
Give your answer in metres. [2]

6 x 45 x 2 ✓

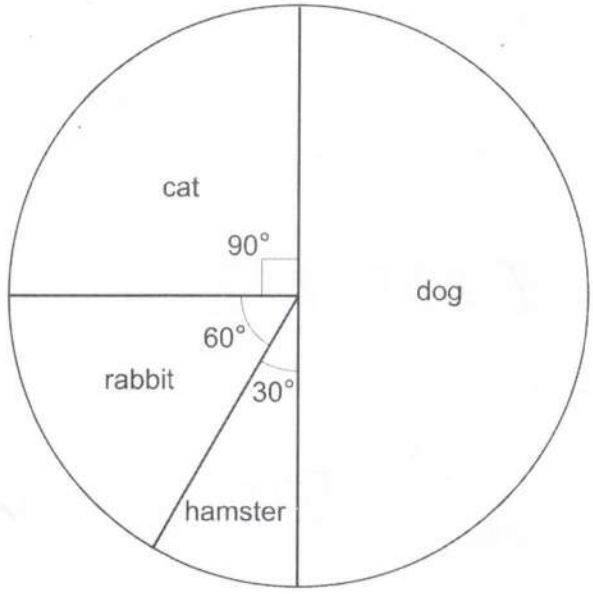
Distance = 540 m ✓

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09

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5. Each student in a group was asked to choose their favourite pet.
The pie chart below shows the results.



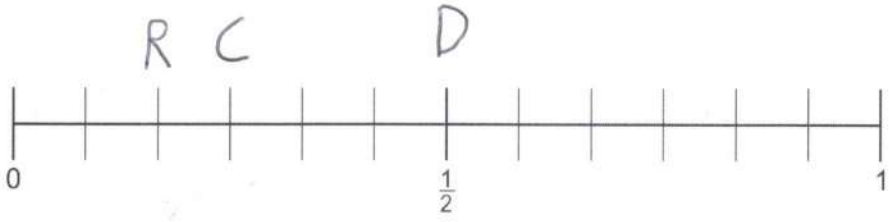
(a) What fraction of the students chose hamster? [2]
Give your answer in its simplest form.

✓ $\frac{30}{360} = \frac{1}{12}$ ✓

(b) One student is chosen at random from the group.

D is the probability that the student's favourite pet is a dog
C is the probability that the student's favourite pet is a cat
R is the probability that the student's favourite pet is a rabbit.

Mark **D**, **C** and **R** on the probability scale below. [3]



✓✓ ✓

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6. A rectangle has an area of 42 cm^2 and a perimeter of 34 cm.

Calculate the length and width of the rectangle. [2]

42 { 42 × 1
21 × 2
14 × 3
7 × 6

14 + 3 + 14 + 3 = 34

m ✓

Length = 14 cm Width = 3 cm ✓

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11

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7. Rita writes down two numbers.

Her numbers satisfy the following conditions.

- Both numbers are greater than 12.
- Both numbers are prime numbers.
- The sum of the two numbers is 40.

Which two numbers does Rita write down? [2]

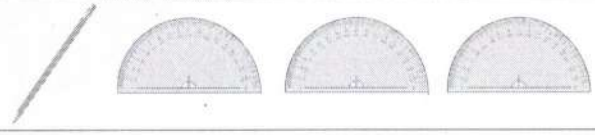
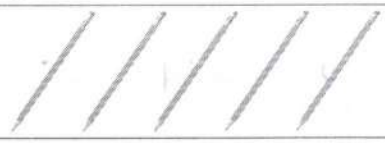
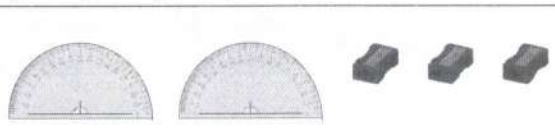
13 17 19 23 ~~29~~ ~~31~~ ~~37~~
(11) (9) (3)
✓

The numbers that Rita writes down are 17 and 23 ✓

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8. The table below shows some stationery items and their costs.

Stationery items	Total cost
	£4.39
	£3.20
	£5.38

Assume that:

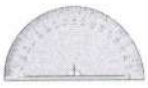
- each pencil costs the same amount
- each protractor costs the same amount
- each pencil sharpener costs the same amount.

Complete the table below to show the cost of each item. [5]

$3.2 \div 5 = 0.64$

$(4.39 - 0.64) \div 3 = 1.25$ ✓

$(5.38 - 2.50) \div 3 = 0.96$ ✓

Stationery item	Cost
	£0.64 ✓
	£1.25 ✓
	£0.96 ✓

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13

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9. Demitri, Greta and their friends play air hockey matches throughout the summer.



Each player calculates their points total using the following formula.

$$\text{Points total} = 3 \times \text{number of wins} + 2{\cdot}5 \times \text{number of draws} - \text{number of losses}$$

(a) So far this summer, Demitri has 7 wins, 8 draws and 9 losses.

What is his points total for the matches he has played? [2]

$(3 \times 7) + (2{\cdot}5 \times 8) - (9 \times 1)$ ✓

$21 + 20 - 9 = 32$ ✓

(b) So far this summer, Greta has a points total of 48.
She has won 6 matches and had no losses.

How many matches has she drawn? [3]

$48 - 6 \times 3 = 30$ ✓

$30 \div 2{\cdot}5 = 12$ ✓

✓

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10. The temperature in Nuuk, Greenland was recorded at midday for each of the days Monday to Saturday.
The temperatures, in °C, are listed below.

−9 −8 −4 −5 −1 −8

(a) What is the mode of these temperatures? [1]

-8

(b) What is the median of these temperatures? [2]

-9 -8 -8 -5 -4 -1 ✓

-6.5 ✓

(c) The temperature at midday on Sunday was recorded.
The mean midday temperature for the 7 days was −6 °C.

What was the temperature at midday on Sunday? [2]

All 7 days total = 7 x -6 = -42 ✓

-42 - (-35)

The temperature at midday on Sunday was -7 °C ✓

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15

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11. (a) Write down the next two terms in the sequence. [2]

–15, –12, –9, –6, -3, 0

✓ ✓

(b) Simplify $16y-3(2y+7)$. [2]

16y - 6y - 21 = 10y - 21 ✓

✓

(c) Factorise $12w-9$. [1]

3(4w - 3) ✓

(d) Solve $5x+3=14$. [2]

5x = 11 ✓ $x = \frac{11}{5}$ or $2\frac{1}{5}$ or 2.2 ✓

(e) Layla is trying to solve the equation $\sqrt[3]{y}=5$.

She uses the method shown below.

$\sqrt[3]{y} = 5$

$y = 5 \times 3$

So, y = 15

Explain why Layla's method is incorrect. [1]

'Should be cubed' etc ✓

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12. (a) Calculate 37% of 650. [2]

$\frac{37}{100} \times 650$ ✓ $= 240.5$ ✓

(b) A piece of elastic is 477 mm long.

It can be stretched by $\frac{2}{9}$ of its length before it snaps.

What is the length of the elastic when it snaps? [3]

$477 \times \left|\frac{2}{9}\right.$ ✓✓

The length of the elastic when it snaps is 583 ✓ mm.

(c) Write 54 as a percentage of 171.
Give your answer correct to 1 decimal place. [3]

$\frac{54}{171} \times 100 = 31.57\ldots = 31.6$ ✓

✓ ✓

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13. The recipe below is used to make a small pumpkin pie.



Small pumpkin pie
(serves 8)

340g	shortcrust pastry
450g	pumpkin
2	large eggs
75g	brown sugar
275ml	double cream
$\frac{1}{2}$ tsp	cinnamon

X1·5

(a) The recipe can be changed to make a large pumpkin pie to serve 12 people.
Peter makes a large pumpkin pie.

How many grams of pumpkin does Peter need? [2]

450 x 1·5 = 675 ✓ ✓

(b) Grace made a number of **small** pumpkin pies for a Halloween party.
She used a total of 1·65 litres of double cream to make her pies.

How many small pumpkin pies did Grace make? [3]

1650 ÷ 275 = 6 ✓ ✓ ✓

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14. Igor invests £2500 in a savings account. 1000
The account pays 5·4% simple interest per year.
The interest is added to the account at the end of each year.

After how many years will the amount of money in the savings account be greater than £3500?
You must show all your working. [5]

✓ 2500 × 0·054 = £135 ✓

1000 ÷ 135 = 7·4 yrs ✓

✓ so 8 ✓

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15.





Ahmed buys 1·4 kg of Brazil nuts and 0.8 kg of cashew nuts.
He pays a total of £21.84.
The cost of 1 kg of Brazil nuts is £9.60.

What is the cost of 1 kg of cashew nuts? [4]

$9{\cdot}6 \times 1{\cdot}4 = 13{\cdot}44$ ✓

$21{\cdot}84 - 13{\cdot}44 = £8{\cdot}40$ ✓

$8{\cdot}40 \div 0{\cdot}8 = 10{\cdot}5$

✓

The cost of 1 kg of cashew nuts is £10·50 ✓

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16. *PQRS* is a parallelogram.
U is a point on the line *PS*.
T is a point on the line *PR*.

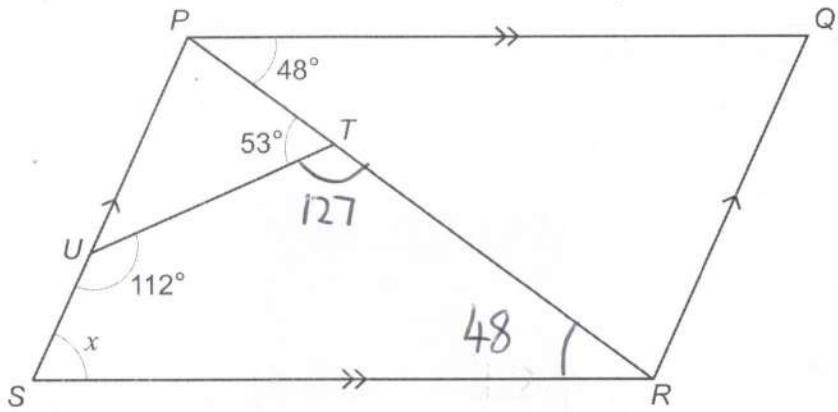


Diagram not drawn to scale

Show that $x = 73°$.
Give a reason for each step of your answer. [4]

$\angle UTR = 180 - 53 = 127$ (angles on a line sum to 180) ✓

$\angle PRS = 48$ (alternate angles are equal) ✓

Angles in quadrilateral SUTR sum to 360 ✓

so $x = 360 - (112 + 127 + 48)$ ✓

$= 73$

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17. Use the information below to answer the following questions.

1 mile = 1·6 kilometres (km)
1 gallon = 4·5 litres

(a) Heidi is travelling to Exeter on the M5 motorway.
Motorway signs display the distances in **miles**.





Heidi passes the sign shown above at 5:35 p.m.
She intends to travel at an average speed of **80 km/h** for the remainder of her journey to Exeter.

At what time does Heidi expect to arrive in Exeter?
Give your answer to the nearest minute.
You must show all your working. [5]

$T = \frac{D}{S} = \frac{64 \times 1.6}{80} = 1.28$ hrs ✓✓✓

$0.28 \times 60 = 16.8 = 17$ mins ✓

5:35pm + 1hr + 17min

Heidi expects to arrive in Exeter at 6:52pm ✓

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(b) At the start of the journey, Heidi stopped at a garage to fill her fuel tank with diesel.
The cost of diesel was £1.52 per litre.
Heidi spent £102.60 on diesel.

How many **gallons** of diesel did Heidi buy? [3]

$\frac{102{\cdot}60}{1{\cdot}52 \times 4{\cdot}5}$ ✓ ✓

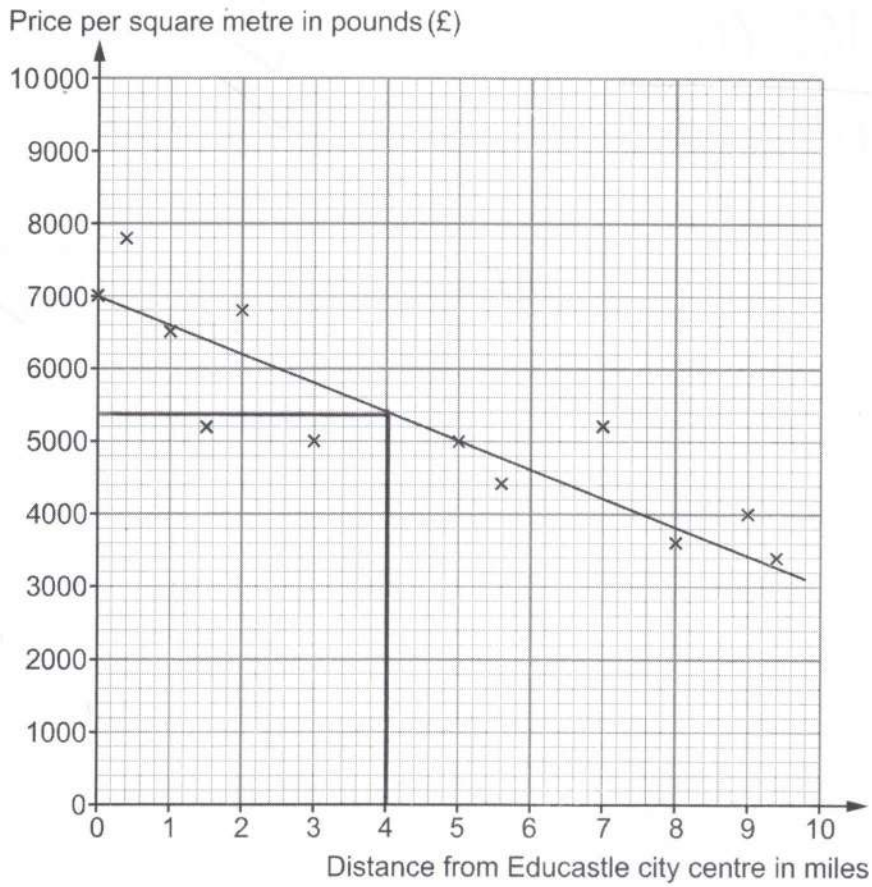
Heidi buys 15 ✓ gallons of diesel.

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18. When selling an apartment, the selling price can be calculated using the price per square metre of floor area.

The scatter diagram shows the price per square metre of 12 apartments and their distance from Educastle city centre.
It also shows the line of best fit for the data.



(a) Describe the relationship between the price per square metre of an apartment and its distance from Educastle city centre. [1]

The further from the city the lower the price per sq m ✓

(b) Use the line of best fit to estimate the price per square metre of an apartment that is 4 miles from Educastle city centre. [1]

5400 ✓

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(c) Ellie says,

"All apartments 6 miles from Educastle city centre cost £4600 per square metre."

Is Ellie's statement correct?

Yes ☐ No ☑

Give the reason for your answer. [1]

It's estimated from 12 other apartments ✓

(d) The table below shows information about the house prices of 35 houses on a street outside Educastle city centre.

Price, p, thousand pounds	Frequency			
$100 < p \leqslant 150$	×	8	=	1000
$150 < p \leqslant 200$	×	12	=	2100
$200 < p \leqslant 250$	×	9	=	2025
$250 < p \leqslant 300$	×	5	=	1375
$300 < p \leqslant 350$	×	1	=	325
				6825

mp: 125, 175, 225, 275, 325 ✓

Calculate an estimate for the mean house price on the street. [4]

✓ ÷35

=£195 thousand ✓

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19. Greg has been saving 10p and 20p coins in a money jar.

The ratio of the number of 10p coins to the number of 20p coins in Greg's money jar is 2:7.

Greg gives all the 20p coins to his children, Rona and Jamie, in the ratio 3:4.
The 20p coins that Rona was given have a total value of £3.60. = 18 coins

What was the total value of the coins in Greg's money jar? [6]
You must show all your working.

(10) (20)
2 7

R J
3 4
x6 ↓ ↓ x6
18 24 ✓

✓ so 42, 20p coins = 8.40 ✓✓
+
and 12, 10p coins = 1.20 ✓

The total value of the coins in Greg's money jar was £9.60 ✓

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20. The diagram shows a square inside a circle.
Each corner of the square lies on the circumference of the circle.
The length of each side of the square is 13 cm.

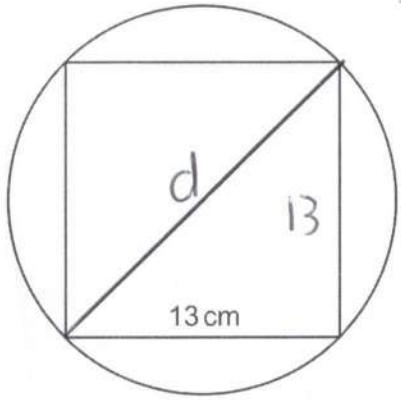


Diagram not drawn to scale

Calculate the area of the circle.
Give your answer correct to 1 decimal place.
You must show all your working. [5]

$d = \sqrt{13^2 + 13^2} = 13\sqrt{2}$ or 18.38... ✓✓

$r = 6.5\sqrt{2}$ etc ✓

Area $= \pi r^2 = \pi \times (6.5\sqrt{2})^2$ ✓

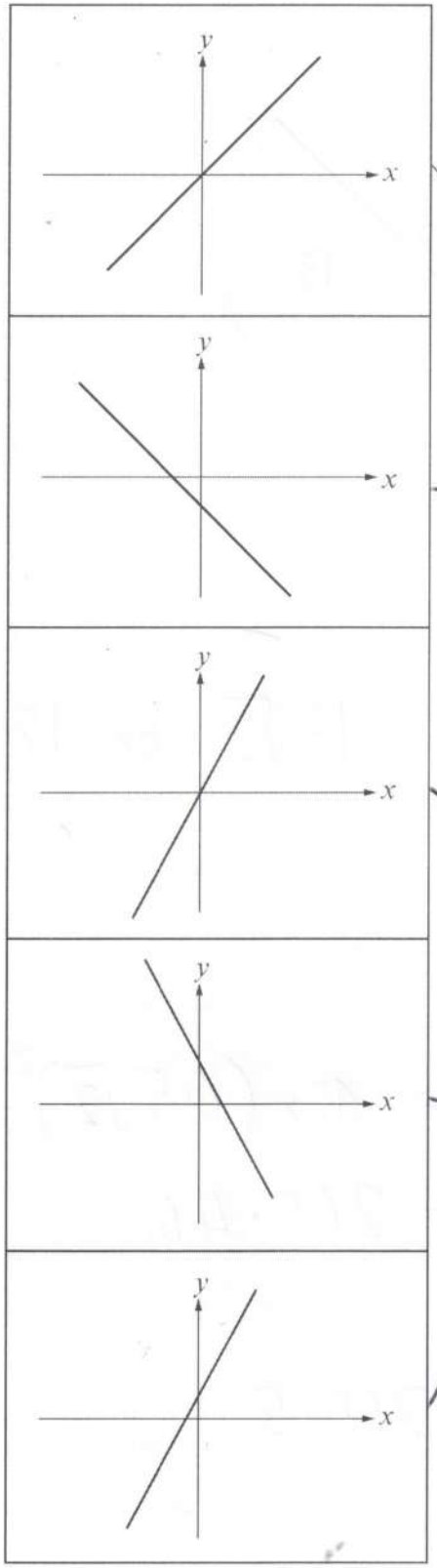
$= 265.46...$

Area of the circle = 265.5 cm^2 ✓

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21. (a) Five straight-line graphs and their equations are shown below.
Draw a line to connect each graph to its equation.
One has been completed for you. [2]



$y = 2x + 1$

$y = x$

$y = -x - 1$

$y = 2x$

$y = -2x + 1$

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(b) Circle the equation of the straight line that is parallel to $y = 3x + 5$. [1]

$3y = x + 5$ $\quad y = -3x$ $\quad (2y = 6x + 8)$ $\quad y = \frac{1}{3}x + 5$ $\quad y + 3x = 7$

$y = 3x + 4$

(c) Make y the subject of the following formula. [2]

$$\frac{y}{a} + b = x$$

$$\frac{y}{a} = x - b$$

$$y = a(x - b)$$

or

$$ax - ab$$

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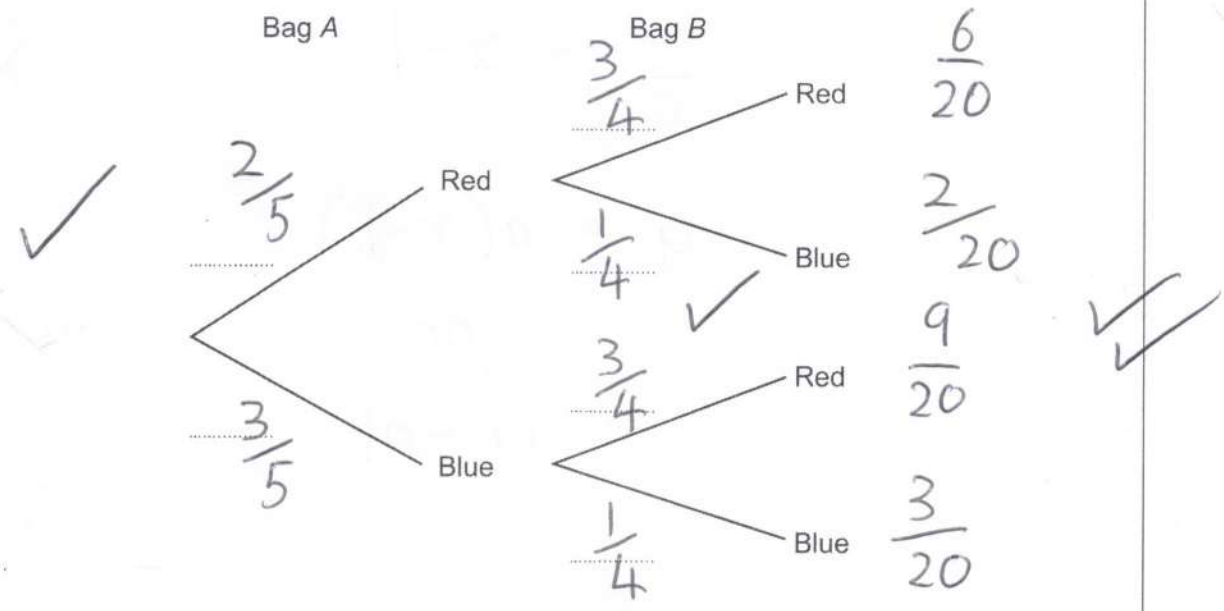
22. Yasmin has two bags, Bag *A* and Bag *B*.
Each bag contains some red counters and some blue counters.

Bag *A* contains 2 red counters and 3 blue counters.
In Bag *B* the number of red counters is three times the number of blue counters.

Yasmin randomly chooses one counter from Bag *A* and then one counter from Bag *B*.

(a) Complete the probability tree diagram. [3]

(B) eg R=3, B=1 so $\frac{3}{4}$ and $\frac{1}{4}$ ✓



(b) Calculate the probability that Yasmin chooses at least one blue counter. [3]

(2+9+3) $\frac{14}{20}$ ✓OE

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23. (a)

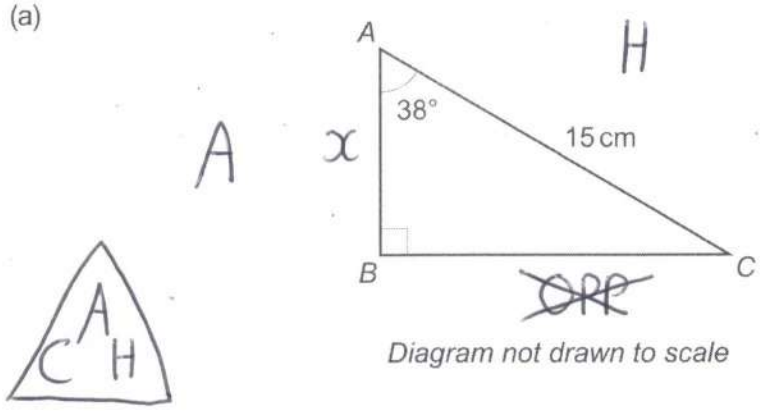


Diagram not drawn to scale

Calculate the length of *AB*. [3]

$x = 15 \times \cos 38 = 11.8...$ ✓

✓✓

(b)

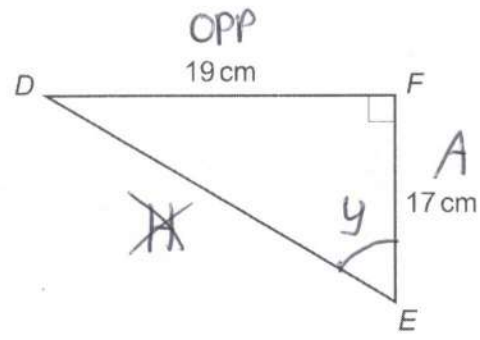


Diagram not drawn to scale

Calculate the size of $D\hat{E}F$. [3]

$y = \tan^{-1}\left(\frac{19}{17}\right) = 48.1 (798...)$

✓ ✓ ✓

END OF PAPER

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