Name: **Solutions**

GCSE 9-1 Foundation
Practice Paper
Set A
Paper 2 - Calculator

Corbettmaths

Equipment

1. A black ink ball-point pen.
2. A pencil.
3. An eraser.
4. A ruler.
5. A pair of compasses.
6. A protractor.
7. A calculator

Guidance

1. Read each question carefully.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Information

1. Time: 1 hour 30 minutes
2. The maximum mark for this paper is 80.
3. You may use tracing paper.

Question	Mark	Available
1		1
2		1
3		3
4		4
5		5
6		2
7		2
8		4
9		4
10		4
11		4
12		5
13		3
14		4
15		4
16		3
17		2
18		3
19		4
20		4
21		2
22		5
23		2
24		5
Total		80

1. Write $\dfrac{13}{50}$ as a percentage

$$= \dfrac{26}{100}$$

26 ....%

(1)

2. List all multiples of 13 between 30 and 60

13, 26, 39, 52, 65

39, 52 ....

(1)

3. (a) Simplify $5c \times 3c$

$15c^2$ ....

(1)

(b) Simplify $w \times w \times w$

w^3 ....

(1)

(c) Simplify $\dfrac{8w + 12}{4}$

$2w + 3$ ....

(1)

4.   A lorry can safely transport 2 tonnes of goods.

Florence is loading the lorry with washing machines, ovens and microwaves.

Florence wants to load the lorry with:

8 washing machines, each weighing 85kg.
12 ovens, each weighing 75kg.
22 microwaves, each weighing 20kg.

Can Florence safely transport the 8 washing machines, 12 ovens and 22 microwaves?
You must show how you get your answer.

$8 \times 85 = 680 \text{ kg}$

$12 \times 75 = 900 \text{ kg}$

$22 \times 20 = 440 \text{ kg}$

total weight $= 680 + 900 + 440 = 2020 \text{ kg}$

2 tonnes $= 2000 \text{ kg}$

So <u>no</u>, she can't (she is 20kg over)

(4)

5. The table gives information about students staying after school to play sport.

Sport	Frequency	Angle
Netball	15	$\times 6 = 90°$
Hockey	10	$\times 6 = 60°$
Rugby	26	$\times 6 = 156°$
Football	9	$\times 6 = 54°$
total	60	

(a) What fraction of the students played netball or football?

$$\frac{15+9}{60} = \qquad \frac{24}{60}$$

(2)

(b) Draw an accurate pie chart to show the information in the table.

$360 \div 60 = 6$
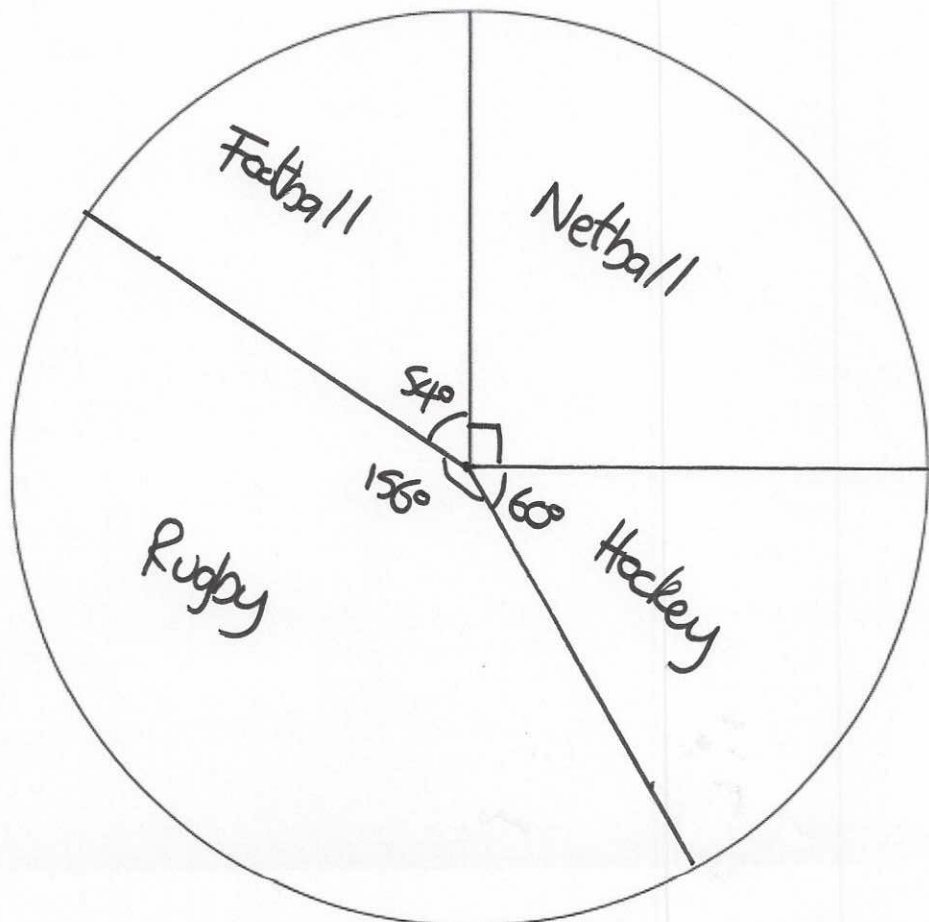
(3)

6. There are between 30 and 40 sweets in a bag.
Ben and Daisy share the sweets in the ratio 4:5.
There are no sweets remaining in the bag.

Work out how many sweets were in the bag to begin with.

$4 + 5 = 9$

So the total number of sweets must be a multiple of 9

36 ....

(2)

___

7. Find three different prime numbers with a sum of 40

| 2 | + | 7 | + | 31 | = 40 |

prime number   prime number   prime number

(2)

8. The line graph below shows the cost of a coffee in a shop over 30 years.
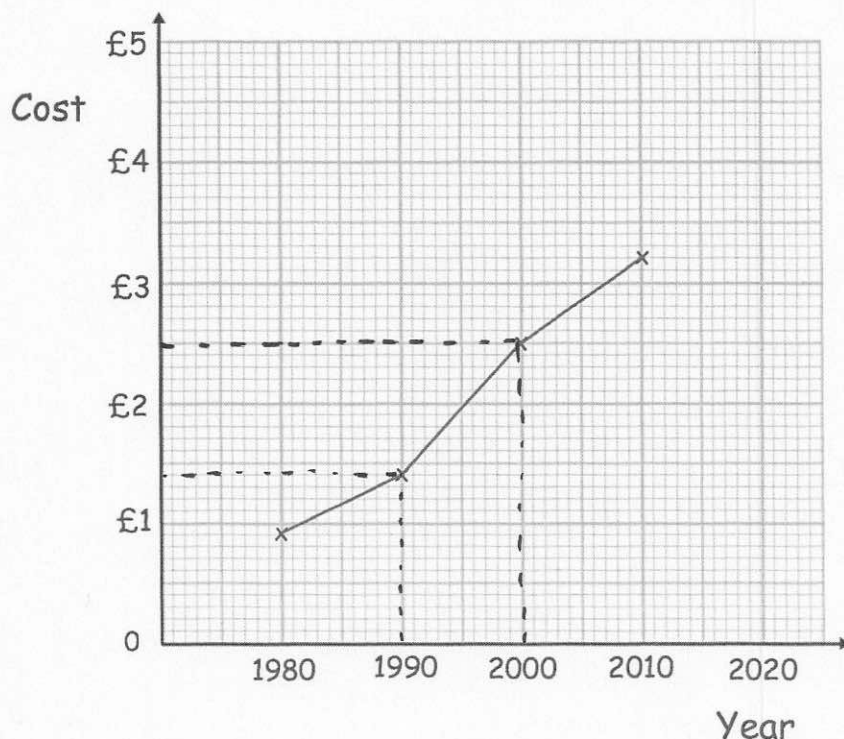
(a) In which year was the price £2.50?

2000

(1)

(b) How much was the price of a coffee in 1990?

£1.40

(1)

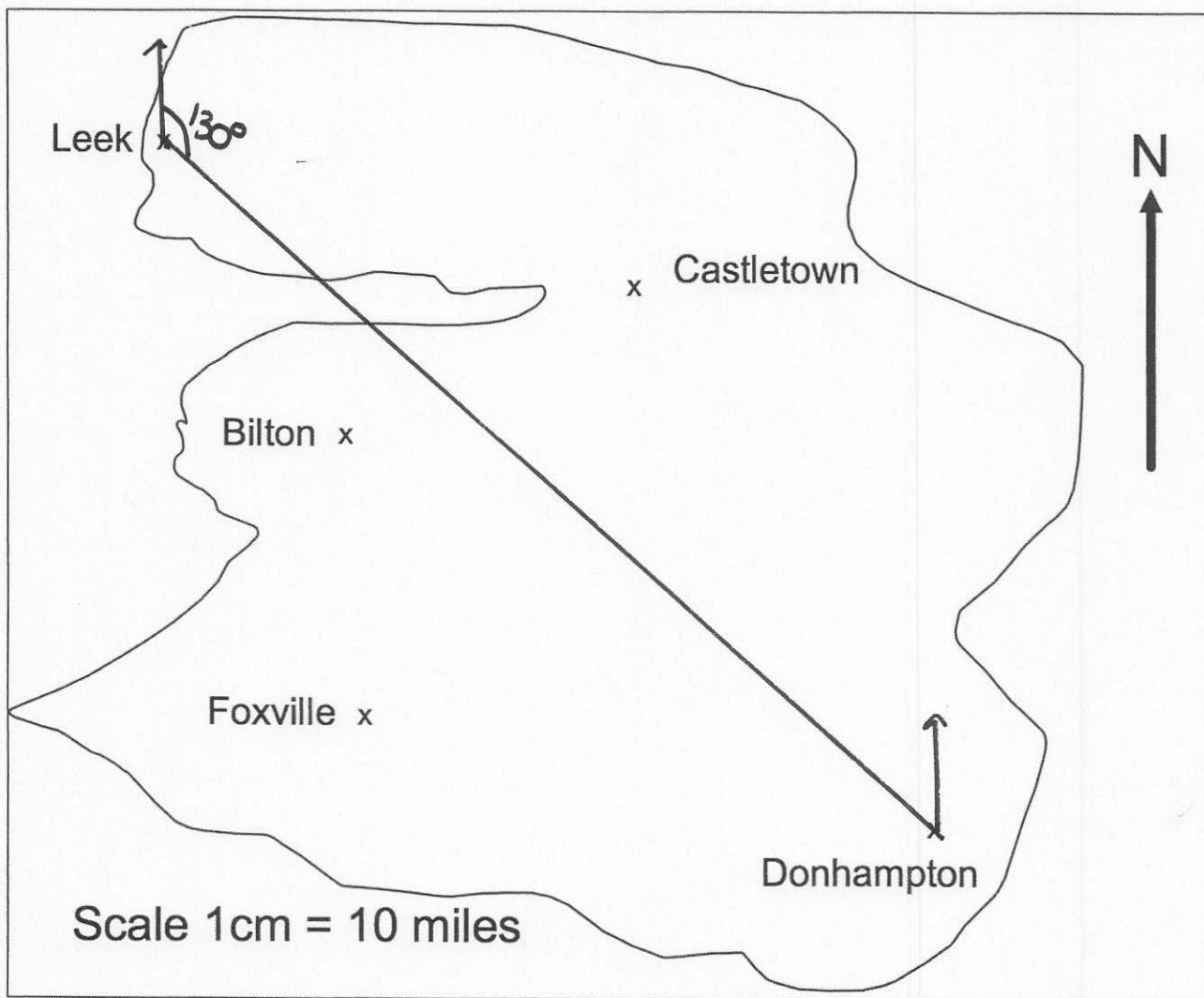Carlos says that the price of a coffee will be £6 by 2020.

Do you agree with Carlos?
Explain your answer.

No, as the graph would need to be a lot steeper to reach £6 by then. It doesn't follow the trend.

(2)

9.

This is a map of an island.

Scale 1cm = 10 miles

A helicopter flies in a straight line from Leek to Donhampton.

(a) How far does the helicopter fly?

$L \rightarrow D \simeq 14.5cm$

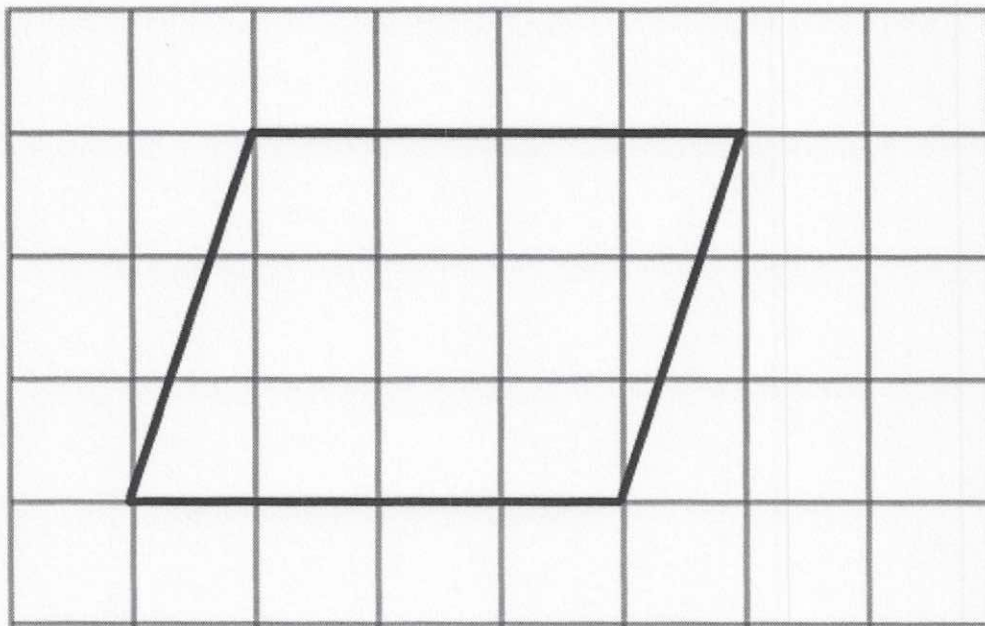$14.5 \times 10 =$ ......145......miles

(2)

(b) Write down the bearing of Donhampton from Leek.

......130...... °

(2)

10. Here is a quadrilateral drawn on a centimetre grid.

(a) Write down the special name for the quadrilateral.

parallelogram

(1)

(b) Find the area of the quadrilateral.

$4 \times 3 =$ ....12..........cm²

(2)

(c) Write down the order of rotational symmetry that the shape has.

..........2..........

(1)

11. An adult ticket for a museum is £16.00
A child ticket costs 70% of the price of an adult ticket.
Mrs Jenkins and her three children go to the museum.

Mrs Jenkins has a voucher that reduces the total entry cost by 10%

Mrs Jenkins pays with three £20 notes.

Work out how much change Mrs Jenkins will receive.

70% of $16 = £11.20$

total ticket price $= 16 + 3 \times 11.20$
$\qquad\qquad\qquad = £49.60$

10% of $49.60 = £4.96$

$£49.60 - £4.96 = £44.64 \leftarrow$ Total price

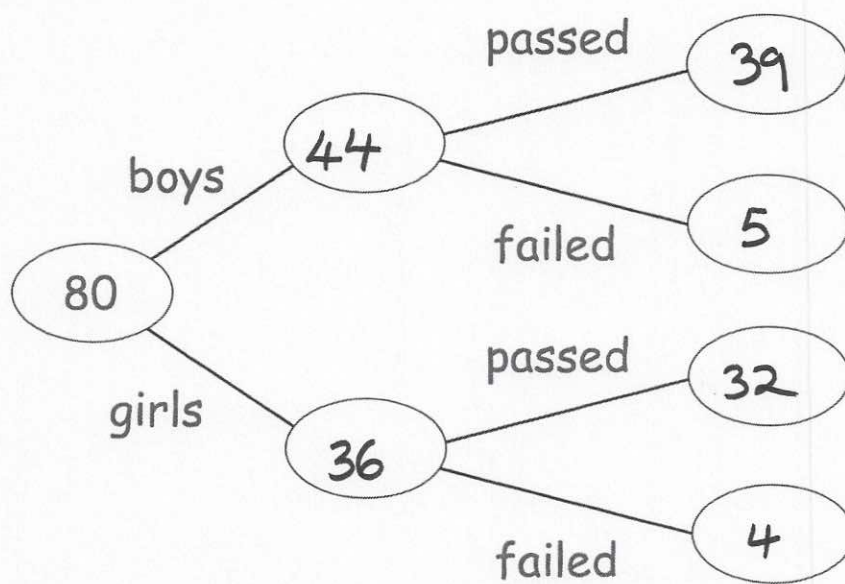$3 \times 20 - 44.64 = £15.36$ change

£ 15.36

(4)

12. 80 children sat a test.

36 of the children are girls.
9 of the 80 children failed the test.
39 of the boys passed the test.

(a) Use this information to complete the frequency tree.

passed
39
boys
44
failed
5
80
passed
32
girls
36
failed
4

(3)

One of the girls is chosen at random.

(b) Work out the probability that the girl passed the test.

$\frac{32}{36}$

....

(2)

13. James has received two job offers.

A job in Milan which pays €56,000 a year.
A job in Boston which pays $64,000 a year.

The exchange rates were £1 = $1.26   and   £1 = €1.11.

Which job offer has the best salary?
Show working to explain your answer.

€56,000 ÷ 1.11 = £50450.45

$64,000 ÷ 1.26 = £50793.65

Boston has a higher salary

(3)

14. x is an odd number.
      y is an even number.

Jackson says that x^2 is always odd.

(a) Give an example to show Jackson is right.

$$5^2 = 25 \qquad (5 \text{ is odd, so is } 25)$$

(odd x odd is always odd)

(2)

Leon says that $4x + y$ is always odd.

(a) Give an example to show Leon is wrong.

$x = 5$
$y = 2$

$4 \times 5 + 2 = 22$ which is even

(2)

15. Barnaby has 288 counters in a bag.
The counters are red, yellow and white.

$\frac{3}{8}$ of the counters are red.

The other counters are yellow and white in the ratio 1:4

Work out how many counters of each colour there are.

$\frac{3}{8}$ of 288 = 108 red

288 ÷ 108 = 180

180 ÷ (1+4) = 36 yellow

36 × 4 = 144 white

Red: ...108... Yellow: ...36... White: ...144...

(4)

16. Solve $2(4x - 3) = 5(2x - 5)$

$$8x - 6 = 10x - 25$$
$$19 = 2x$$
$$x = 19 \div 2 =$$

x = ...9.5......

(3)

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17. A website had 80000 views in September.
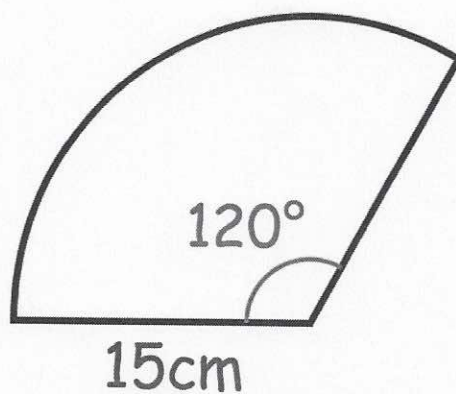It had 122400 views in October.

Work out the percentage increase in views.

$$\frac{122400 - 80000}{80\,000} \times 100 =$$

......53......%

(2)

18.

120°

15cm

Find the perimeter of the sector.
Give your answer to 1 decimal place.

$$\text{Circumference} = \pi \times d = 30\pi = 94.247\ldots$$

$$\text{arc is } \frac{120}{360} \times 94.247\ldots = 31.415\ldots$$

$$\text{perimeter} = 31.415\ldots + 15 + 15 = 61.41592\ldots$$

61.4 ....cm

(3)

19. Beatrice has a biased four sided spinner.
The table shows the probabilities that the spinner will land on a 2 or 3.

Number	1	2	3	4
Probability	0.45	0.1	0.3	0.15

The probability that the spinner will land on 1 is three times the probability that the spinner will land on 4.

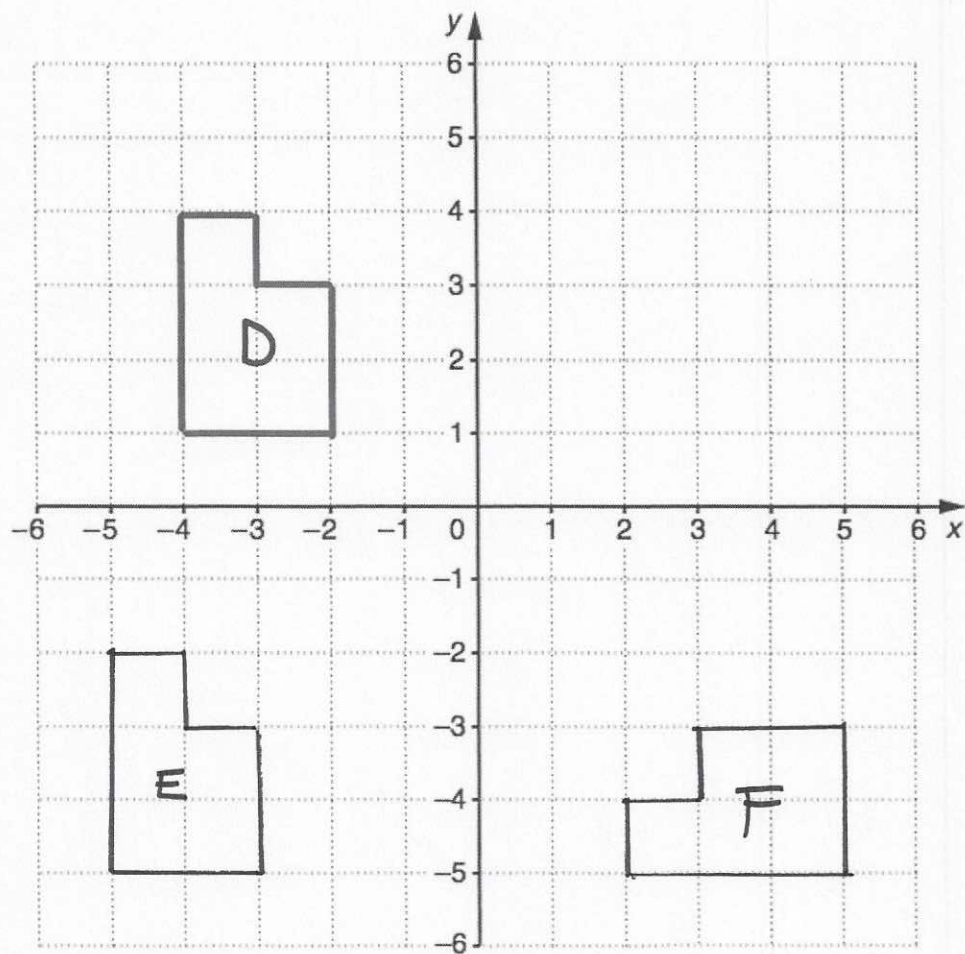Work out the probability that the spinner will land on a 1 or 3.

$$1 - 0.4 = 0.6$$

$$0.6 \div 4 = 0.15$$

$$0.15 \times 3 = 0.45$$

$$0.3 + 0.45 =$$

.........0.75.........

(4)

20.

(a) Translate shape D by the vector $\begin{pmatrix} -1 \\ -6 \end{pmatrix}$

Label the new shape E.

(2)

(b) Rotate shape E 90° anticlockwise about the origin.
Label the new shape F.

(2)

21. $w^{12} \div w^y = w^6$

(a) Find the value of y

$12 - y = 6$

y = ...6............

(1)

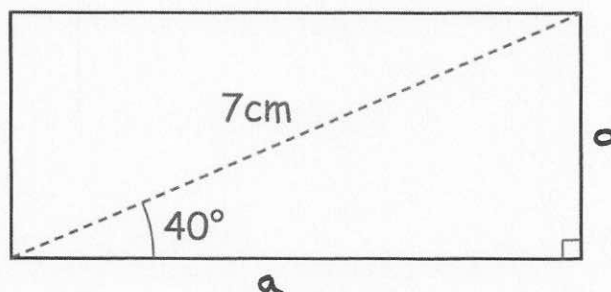$(m^x)^3 = m^9$

(b) Find the value of x

$3x = 9$

x = ...3............

(1)

22.

Work out the area of the rectangle.
Give your answer to 1 decimal place.

$0 = 7 \times \sin 40 = 4.499\ldots$

$a = \sqrt{7^2 - 4.499^2} = 5.3623\ldots$

area $= 4.499\ldots \times 5.3623\ldots$

$=$

24.1
....................cm²

(5)

23. Use your calculator to work out

$$\frac{\sqrt{39.75 + 24.44}}{0.55 \times \sqrt[3]{1.2 \times 1.9}}$$

(a) Write down all the figures on your calculator display.

11.06775107

(1)

(b) Write down your answer to part (a) correct to 2 significant figures.

11

(1)

24. (a) Factorise $x^2 - 36$

$(x - 6)(x + 6)$

(1)

(b) Expand and simplify $(5x - 1)(2x + 3)$

$10x^2 + 15x - 2x - 3 =$

$10x^2 + 13x - 3$

(2)

(c) Factorise $x^2 - 2x - 24$

$(x - 6)(x + 4)$

(2)