ANSWERS.

Write your name here

Surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9-1)

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics

Paper 1 (Non-Calculator)

Foundation Tier

Thursday 2 November 2017 – Morning
Time: 1 hour 30 minutes

Paper Reference
1MA1/1F

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P 4 9 3 4 7 A 0 1 2 4

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (a) Change 365 cm into metres.

100cm = 1m

3.65 m

(1)

(b) Change 2.7 kg into grams.

1000g = 1kg

2700 g

(1)

(Total for Question 1 is 2 marks)

2 Work out $2 + 7 \times 10$

72

(Total for Question 2 is 1 mark)

3 Solve $\frac{y}{4} = 10.5$

$y = 10.5 \times 4$

$y =$ 42

(Total for Question 3 is 1 mark)

4 Here are four numbers.

−9 −2 2 9

Write one of these numbers in each box to make a correct calculation.

$\boxed{-9} + \boxed{2} = -7$

(or 2 + −9)

(Total for Question 4 is 1 mark)

5 Here are the first four terms of a number sequence.

2 5 11 23

The rule to continue this sequence is

multiply the previous term by 2 and then add 1

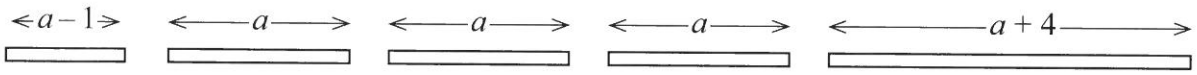
Work out the 5th term of this sequence.

$23 \times 2 + 1$

47

(Total for Question 5 is 1 mark)

6 Here are five straight rods.



All measurements are in centimetres.

The total length of the five rods is L cm.

Find a formula for L in terms of a.
Write your formula as simply as possible.

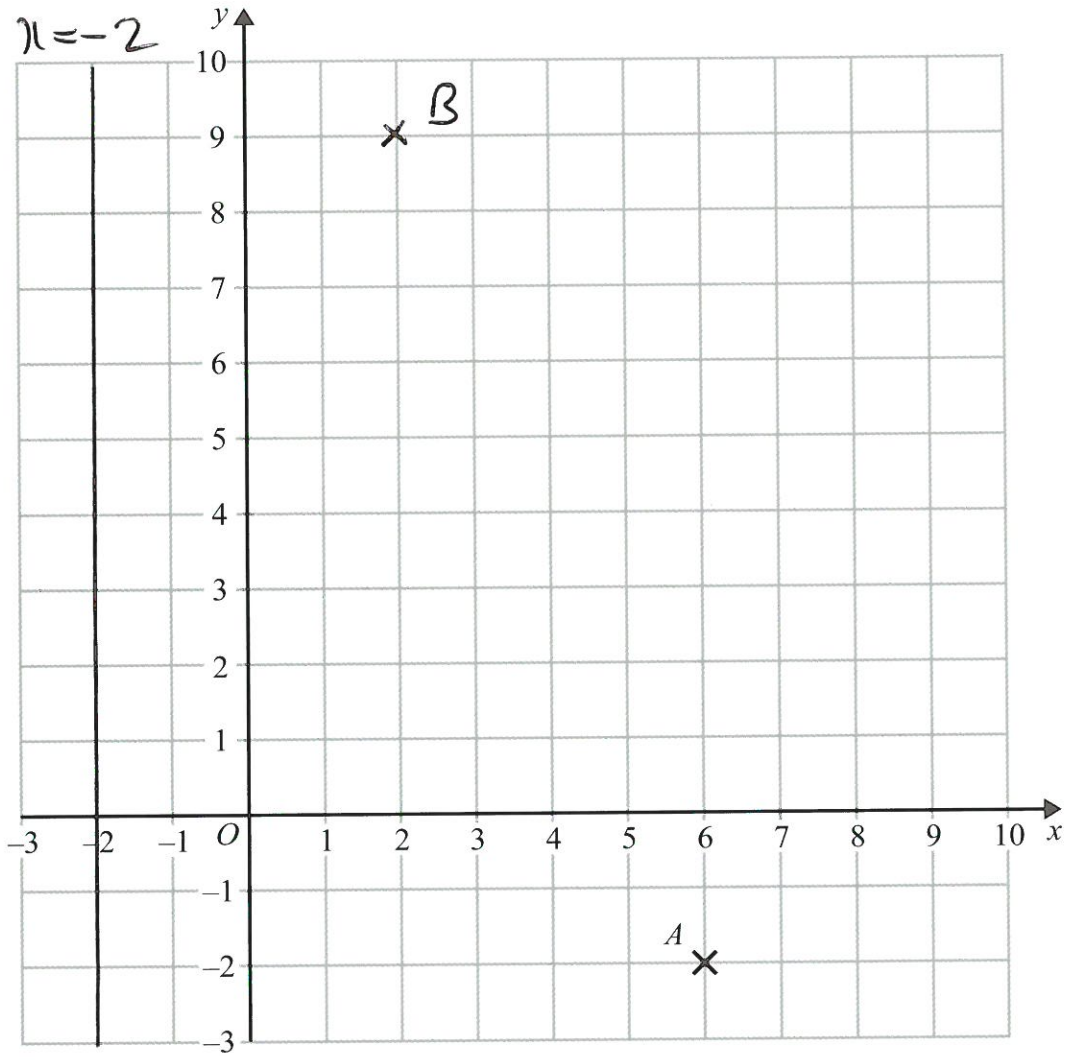
$L = a - 1 + 3a + a + 4$

$= 5a + 3$

$L = 5a + 3$

(Total for Question 6 is 3 marks)

7



(a) Write down the coordinates of the point A.

(6 , -2)

(1)

(b) (i) Plot the point with coordinates (2, 9).
Label this point B.

(1)

(ii) Does point B lie on the straight line with equation $y = 4x + 1$?
You must show how you get your answer.

$x = 2 \quad \therefore y = 4 \times 2 + 1 = 9$

$\therefore$ B DOES LIE ON $y = 4x + 1$

(1)

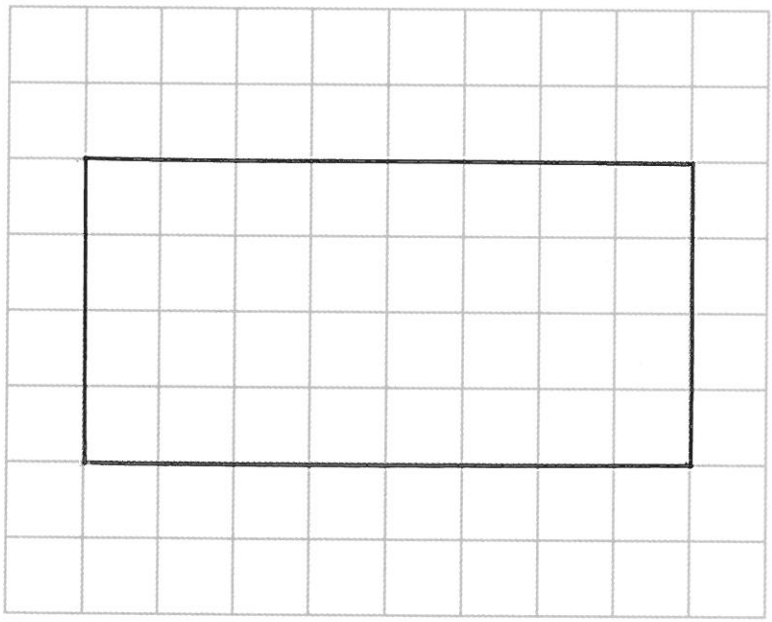
(c) On the grid, draw the line with equation $x = -2$

(1)

(Total for Question 7 is 4 marks)

The length of a rectangle is twice as long as the width of the rectangle.
The area of the rectangle is 32 cm^2. 8×4

Draw the rectangle on the centimetre grid.



(Total for Question 8 is 2 marks)

9 Jacqui wants to work out $3480 \div 5$

She knows that $3480 \div 10 = 348$

Jacqui writes $3480 \div 5 = 174$

because $10 \div 5 = 2$

and $348 \div 2 = 174$

What mistake did Jacqui make in her method?

SHOULD BE $348 \times 2 = 696$

$\therefore 3480 \div 5 = 696$.

(Total for Question 9 is 1 mark)

10 Jake and Sarah each played a computer game six times.

Their scores for each game are shown below.

Jake	10	9	8	11	12	8
Sarah	2	10	7	14	4	10

12 - 8 = 4

14 - 2 = 12

(a) Who had the most consistent scores, Jake or Sarah?
You must give a reason for your answer.

JAKE - RANGE = 4 WHEREAS SARAH'S RANGE = 12. SCORES ARE MORE CONSISTENT IF DATA IS LESS SPREAD OUT.

(1)

Jake played a different game 20 times.

The stem and leaf diagram shows information about his scores.

0	9
1	2 3 3 4 5
2	5 6 6 6 6 7
3	1 3 4 6 8
4	0 2 9

Key
1 | 2 represents 12 points

Jake said his modal score was 6 points because 6 occurs most often in the diagram.

(b) Is Jake correct?
You must explain your answer.

NO

~~YES~~ - 6 OCCURS MOST OFTEN ON THE SAME ROW BUT THIS IS A SCORE OF 26.

(1)

(Total for Question 10 is 2 marks)

11 There are 30 children in a nursery school.
At least 1 adult is needed for every 8 children in the nursery.

(a) Work out the least number of adults needed in the nursery.

$3 \times 8 = 24$

$4 \times 8 = 32$.

4

(2)

2 more children join the nursery.

(b) Does this mean that more adults are needed in the nursery?
You must give a reason for your answer.

NO - 32 CHILDREN WITH $\frac{4}{8}$ ADULTS IS STILL 8 CHILDREN PER ADULT

(1)

(Total for Question 11 is 3 marks)

12 Emma has 45 rabbits.

30 of the rabbits are male.
8 of the female rabbits have short hair.
12 of the rabbits with long hair are male.

(a) Use the information to complete the two-way table.

	Male	Female	Total
Long hair	12	7	19
Short hair	18	8	26
Total	30	15	45

(3)

One of Emma's rabbits is chosen at random.

(b) Write down the probability that this rabbit is a female with short hair.

$\frac{8}{45}$

(1)

(Total for Question 12 is 4 marks)

13 The total surface area of a cube is 294 cm^2.

Work out the volume of the cube.

CUBE HAS 6 SIDES THE SAME

$\therefore$ AREA OF ONE SIDE $= \frac{294}{6} = 49\ cm^2$

$\therefore$ LENGTH OF A SIDE $= \sqrt{49} = 7\ cm$

$\therefore$ VOLUME $= 7 \times 7 \times 7 = 343$

343 ..... cm^3

(Total for Question 13 is 4 marks)

4 Here are two fractions.

$\frac{7}{5}$ $\frac{5}{7}$

Work out which of the fractions is closer to 1
You must show all your working.

$\frac{7}{5} = \frac{49}{35} = 1\frac{14}{35}$ $\frac{14}{35}$ ABOVE 1

$\frac{5}{7} = \frac{25}{35}$ $\frac{10}{35}$ BELOW 1

$\therefore$ $\frac{5}{7}$ IS CLOSER TO 1.

(Total for Question 14 is 3 marks)

15 There are only red buttons, yellow buttons and orange buttons in a jar.
The number of red buttons, the number of yellow buttons and the number of orange buttons are in the ratio 7 : 4 : 9

Work out what percentage of the buttons in the jar are orange.

R Y O

7 : 4 : 9 20

ORANGE IS $\frac{9}{20} \times 100$

45 ..... %

(Total for Question 15 is 2 marks)

6 Berenika wants to buy 35 T-shirts.

Each T-shirt costs £5.80
Berenika does the calculation $40 \times 6 = 240$ to estimate the cost of 35 T-shirts.

(a) Explain how Berenika's calculation shows the actual cost will be less than £240

NUMBER OF T-SHIRTS IS LESS THAN 40 AND COST IS LESS THAN £6 ∴ COST WILL BE LESS THAN 40×6 = 240.

(1)

There is a special offer.

T-shirts £5.80 each. Buy 30 or more T-shirts. Get 10% off the total cost.

(b) Work out the actual cost of buying 35 T-shirts using the special offer.

10% of £5.80 = £0.58

∴ DISCOUNTED PRICE = £5.80 − £0.58 = £5.22

35 × £5.22

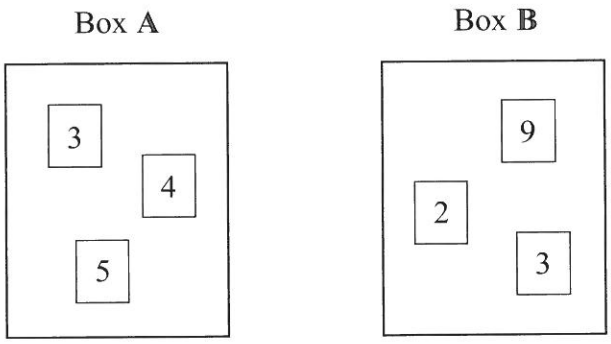
```
  522
x  35
------
 2610
15660
------
18270
```

£ 182.70

(4)

(Total for Question 16 is 5 marks)

17 There are 3 cards in Box **A** and 3 cards in Box **B**.
There is a number on each card.



Ryan takes at random a card from Box **A** and a card from Box **B**.
He adds together the numbers on the two cards to get a total score.

Work out the probability that the total score is an odd number.

A	B	TOTAL	ODD/EVEN?
3	2	5	O
3	3	6	E
3	9	12	E
4	2	6	E
4	3	7	O
4	9	13	O
5	2	7	O
5	3	8	E
5	9	14	E

4 ODD
5 EVEN.
9

$\frac{4}{9}$

(Total for Question 17 is 2 marks)

H R K

10

450 2×45

18 Harry, Regan and Kelan share £450 in the ratio 2 : 5 : 3

How much money does Kelan get?

3 × 45 = 135.

£ 135.

(Total for Question 18 is 2 marks)

9 Here is a list of ingredients for making 16 flapjacks.

Ingredients for 16 flapjacks
120 g butter
140 g brown sugar
250 g oats
2 tablespoons syrup

MULTIPLY EACH BY 1.5

Jenny wants to make 24 flapjacks.

Work out how much of each of the ingredients she needs.

$\frac{24}{16} = 1.5$

butter 180 g

brown sugar 210 g

oats 375 g

syrup 3 tablespoons

(Total for Question 19 is 3 marks)

24 Kiaria is 7 years older than Jay.
Martha is twice as old as Kiaria.
The sum of their three ages is 77

Find the ratio of Jay's age to Kiaria's age to Martha's age.

JAY x
KIARIA $x+7$
MARTHA $2(x+7) = 2x+14$

$2x+14+x+7+x$
$= 4x+21 = 77$

$\therefore 4x = 77-21 = 56$

$\therefore x = \frac{56}{4} = 14.$

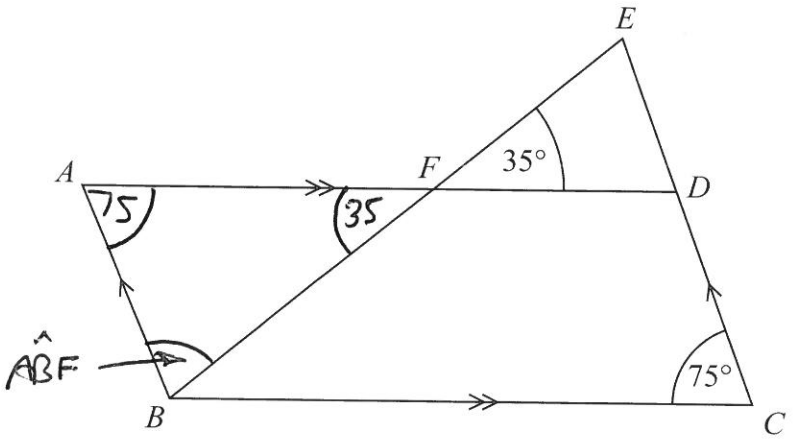
$\therefore$ JAY 14
KIARIA 21
MARTHA 42

$14 : 21 : 42$
$2 : 3 : 6$

2 : 3 : 6
(or 14 : 21 : 42)

(Total for Question 24 is 4 marks)

25



ABCD is a parallelogram.
EDC is a straight line.
F is the point on *AD* so that *BFE* is a straight line.

Angle *EFD* = 35°
Angle *DCB* = 75°

Show that angle *ABF* = 70°
Give a reason for each stage of your working.

$A\hat{F}B = 35°$ VERTICALLY OPPOSITE ANGLES

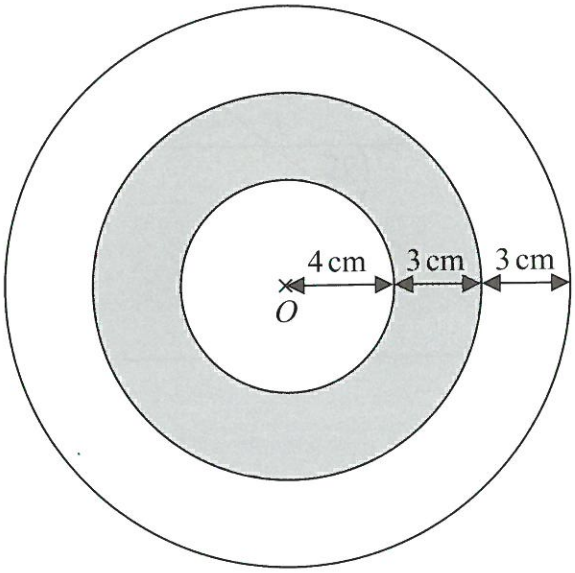
$B\hat{A}F = 75°$ OPPOSITE ANGLES IN A PARALLELOGRAM ARE EQUAL

$\therefore A\hat{B}F = 180 - 75 - 35 = 70°$

BECAUSE ANGLES IN A TRIANGLE ADD UP TO 180°.

(Total for Question 25 is 4 marks)

26 The diagram shows a logo made from three circles.



Each circle has centre O.

Daisy says that exactly $\frac{1}{3}$ of the logo is shaded.

Is Daisy correct?
You must show all your working.

RADIUS OF OUTER CIRCLE = 4 + 3 + 3 = 10cm

∴ AREA = $\pi \times 10^2 = 100\pi$.

RADIUS OF MIDDLE CIRCLE = 4 + 3 = 7cm

∴ AREA = $\pi \times 7^2 = 49\pi$

RADIUS OF INNER CIRCLE = 4cm

∴ AREA = $\pi \times 4^2 = 16\pi$

∴ SHADED AREA = $49\pi - 16\pi = 33\pi$.

∴ SHADED AREA IS $\frac{33\pi}{100\pi} = \frac{33}{100}$ OF TOTAL AREA

$\frac{1}{3} = \frac{33\frac{1}{3}}{100}$ ∴ SHADED AREA IS LESS THAN $\frac{1}{3}$
SO THAT DAISY IS NOT CORRECT.

(Total for Question 26 is 4 marks)

27 The table shows information about the weekly earnings of 20 people who work in a shop.

Weekly earnings (£x)	Frequency
$150 < x \leqslant 250$	1
$250 < x \leqslant 350$	11
$350 < x \leqslant 450$	5
$450 < x \leqslant 550$	0
$550 < x \leqslant 650$	3

200
300
400
500
600
20

200 × 1 = 200
300 × 11 = 3300
400 × 5 = 2000
0
600 × 3 = 1800
7300.

(a) Work out an estimate for the mean of the weekly earnings.

$\frac{7300}{20} = \frac{730}{2} = 365$

365
2 7 3 0

£ 365

(3)

Nadiya says,

"The mean may **not** be the best average to use to represent this information."

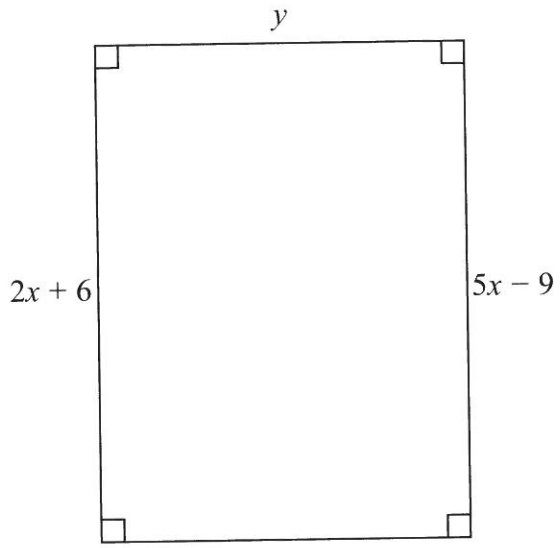
(b) Do you agree with Nadiya?
You must justify your answer.

MEDIAN MAY BE BETTER BECAUSE IT AVOIDS EXTREME VALUES

(1)

(Total for Question 27 is 4 marks)

28 Here is a rectangle.



All measurements are in centimetres.

The area of the rectangle is 48 cm^2.

Show that $y = 3$

$5x - 9 = 2x + 6$

$\therefore 3x = 15$

$\therefore x = 5$

$\therefore 2x + 6 = 2 \times 5 + 6 = 16$

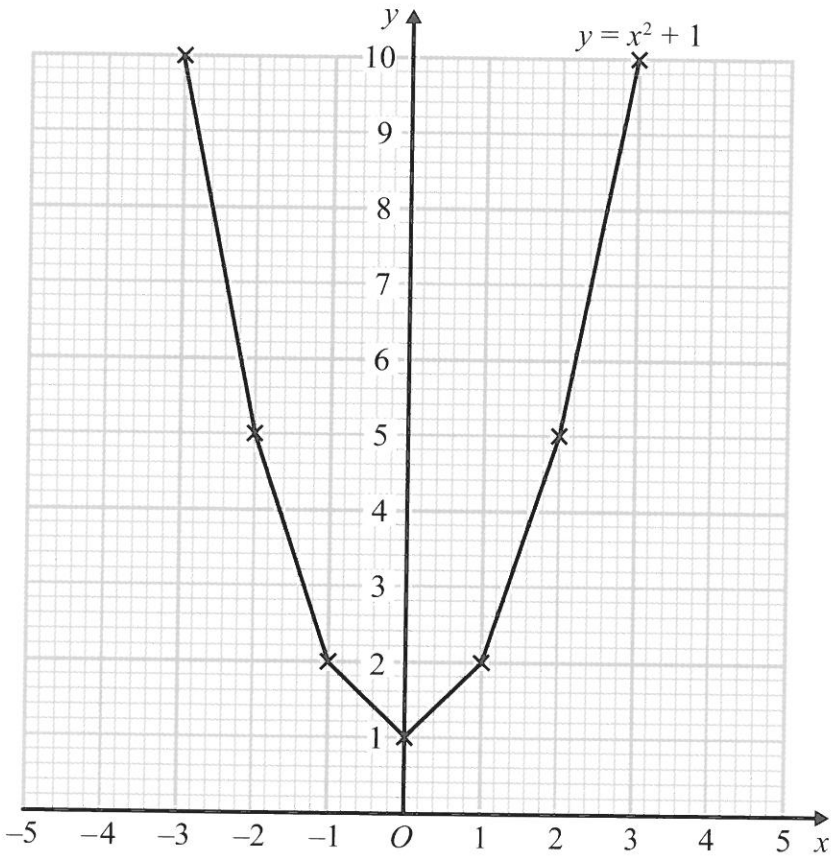
$16y = 48$

$\therefore y = \frac{48}{16} = 3\text{cm}$

(Total for Question 28 is 4 marks)

29 Brogan needs to draw the graph of $y = x^2 + 1$

Here is her graph.



Write down one thing that is wrong with Brogan's graph.

CURVE SHOULD BE DRAWN FREEHAND, NOT WITH A RULER.

(Total for Question 29 is 1 mark)

30 In a sale, the normal price of a book is reduced by 30%.
The sale price of the book is £2.80

Work out the normal price of the book.

SALE PRICE = 70% of NORMAL PRICE

= 0.7 × NORMAL PRICE

∴ NORMAL PRICE = $\frac{\text{SALE PRICE}}{0.7} = \frac{2.80}{0.7}$

$= \frac{28}{7} = 4$

£ 4

(Total for Question 30 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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