AQA

Practice Paper 1

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname

Forename(s) ANSWERS

Candidate signature

GCSE Mathematics

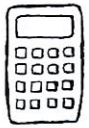
F

Foundation Paper 3 Calculator

Summer 2018 Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- a calculator
- mathematical instruments.



Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to the answer book.

Advice
- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
3	
4 - 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
14 – 15	
16 – 17	
18 – 19	
20 – 21	
22 – 23	
TOTAL	

Teacher	Class

8300/MissB/3F

Practice Paper Overview

Q	Topic	Mark	Total
1	Fractions to Decimals		1
2	Indices		1
3	Units of Length		1
4	Negative Numbers		1
5	Probability		4
6	Coordinates		2
7	Bank Statement		4
8	Ratio and Area		3
9	Number Problem		3
10	Lines of Symmetry		1
11	Frequency Tree		5
12	Best Buy		4
13	Nets		1
14	Function Machines		4
15	Inequality on a Number Line		1
16	Venn Diagram		3
17	Sequences		3
18	Congruence		2
19	Angles on Parallel Lines		4
20	Expand and Simplify Double Brackets		4
21	Product of Prime Factors		3
22	Averages from a Table		6
23	Reverse Percentage		4
24	Compound Interest		5
25	Pythagoras' Theorem		3
26	Right-Angled Trigonometry		2
27	Equation of Parallel Lines		1
28	Form and Solve Equations		4
	Total		**80**

Answer **all** questions in the spaces provided.

Do not write outside the box

1 Circle the decimal that has the same value as $\frac{13}{5}$

13 ÷ 5 = 2.6

[1 mark]

0.6 10.6 13.5 2.6 2.3

1

2 Work out 64 as a power of 2.

Circle your answer.

[1 mark]

8^2 2^3 2^4 2^5 2^6

2 × 2 × 2 × 2 × 2 × 2

2

3 Which unit is **not** a unit of length.

[1 mark]

miles *km* *kg* *m*

Mass

3

3

Do not write outside the box

4 Which statement is **true**?

Circle your answer

[1 mark]

-4 is greater than -7 -7 is greater than -4

-4 is greater than 7 -7 is greater than 4

4

5 A tin contains four different types of biscuits.

A biscuit is taken from the tin at random.

The table below shows some of the probabilities of taking each type of biscuit.

Biscuit	Bourbon	Ginger Nut	Oreo	Digestive
Probability	0.3	0.1	0.4	0.2

5 (a) Complete the table.

[2 marks]

1 − (0.3 + 0.1 + 0.2)

1 − 0.6 = 0.4

5 (b) What is the probability that a bourbon or a digestive is taken from the tin?

[2 marks]

0.3 + 0.2 = 0.5

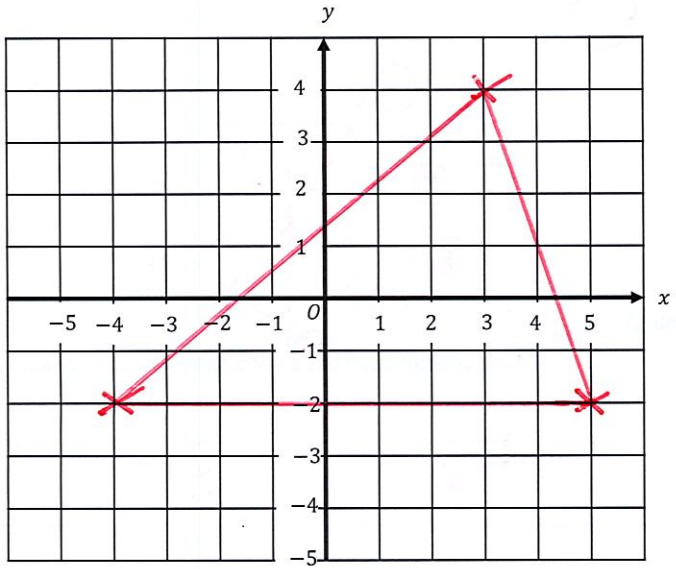
AND 'x' OR '+'

Answer 0.5

8

Do not write outside the box

6 A (3, 4), B (−4, −2) and C (5, −2) are three points.



What type of triangle is ABC?

You must show your working, which may be on the diagram.

[2 marks]

Answer Scalene

10

7

Do not write outside the box

7 Here is a bank statement.

① 96.07 + 829.34 = 925.41
② 925.41 − 465.41 = 460.00

Date	Description	Credit £	Debit £	Balance £
3rd June	Starting Balance			96.07
4th June	Wage	829.34		①925.41
5th June	Rent		②460.00	465.41
6th June	Council Tax		84.28	③381.13
7th June	Cash paid in	36.17		④417.30
8th June	Water Bill		28.49	388.81

③ 465.41 − 84.28 = 381.13
④ 381.13 + 36.17 = 417.30

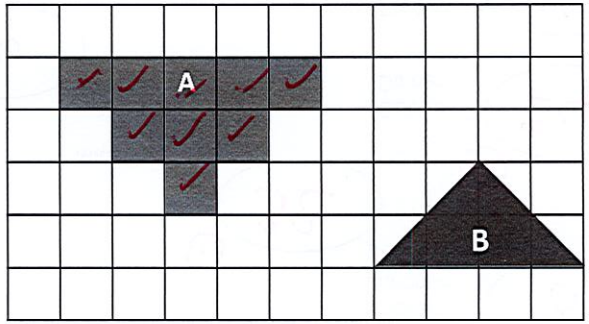
Complete the bank statement.

[4 marks]

14

8 Work out

area of shape A : area of shape B



Give your answer in its simplest form.

[3 marks]

Area A = 9

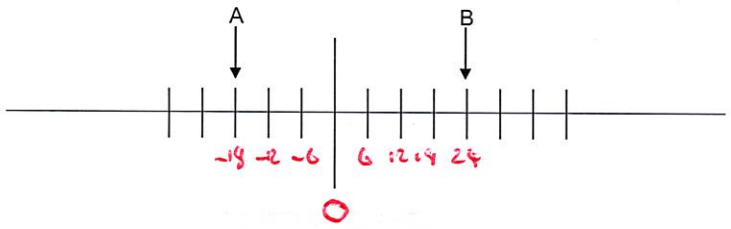
Area B = ½ × 4 × 2 = 4

Answer 9 : 4

17

Do not write outside the box

9 The two numbers, A and B, are shown on a scale.



The difference between A and B is 42.

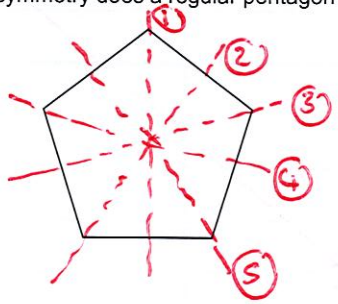
Work out the value of A and the value of B. **[3 marks]**

42 ÷ 7 = 6 each gap

A= -18 B= 24

20

10 How many lines of symmetry does a regular pentagon have? **[1 mark]**



Circle your answer

0 1 2 3 4 5

21

11

Do not write outside the box

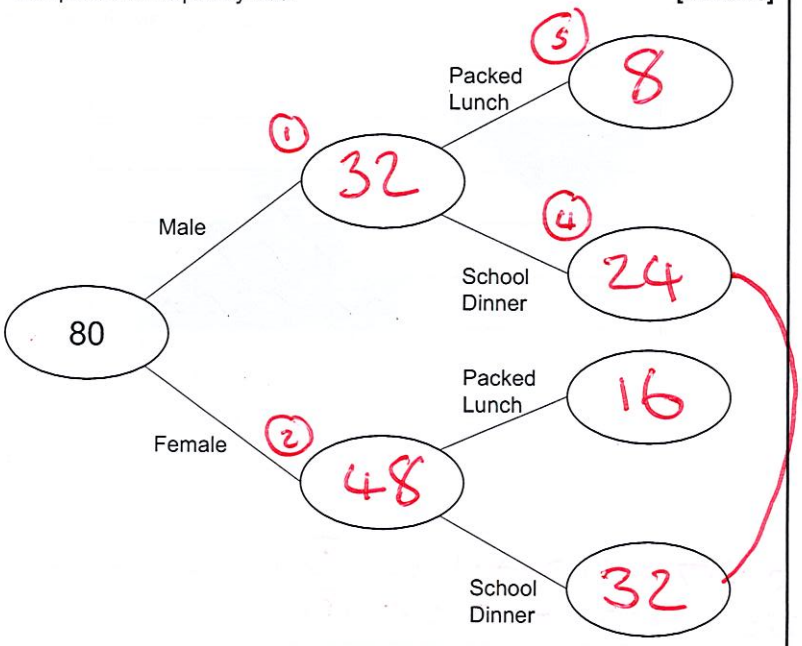
11 80 students are surveyed at random about whether they have a packed lunch or a school dinner.

$\frac{2}{5}$ of those selected are male.

56 people have school dinners altogether.

Twice as many females have school dinners to packed lunches.

Complete the frequency tree. **[5 marks]**



Need to add up to 56

① $\frac{2}{5}$ of 80 | 16 | 16 | 16 | 16 | 16 × 2 = 32

80 ÷ 5 = 16

② 80 − 32 = 48

③ 48 ÷ 3 = 16 ← Female SD 16 × 2 = 32, Female PL 16 × 1 = 16

④ 56 − 32 = 24

⑤ 32 − 24 = 8

26

Do not write outside the box

12 Bottles of water are sold in packs of 8 and packs of 12.

1 pack of 8 for £1.80
or
2 packs of 8 for £3.25

1 pack of 12 for £2.55
or
2 packs of 12 for £5

What is the cheapest way to buy 40 bottles of water?

You must show your working.

if getting 1 pack

[4 marks]

Pack of 8 — Pack of 12

$\frac{180}{8} = 22.5p$ — $\frac{255}{12} = 21.25p$

So $22.5 \times 40 = £900$ — $21.25 \times 40 = £8.50$

2 pack of 8 — 2 pack of 12

$\frac{325}{16} = 20.31p$ — $\frac{500}{24} = 20.83p$

So 2 x 2 packs of 8 — 325 (16 cans)

325 (16 cans)

& 1 pack of 8 — 180 (8 cans)

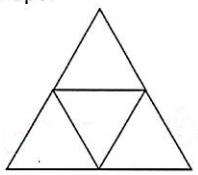
£8.30

Answer £8.30

30

Do not write outside the box

13 Here is the net of a 3D shape.



[1 mark]

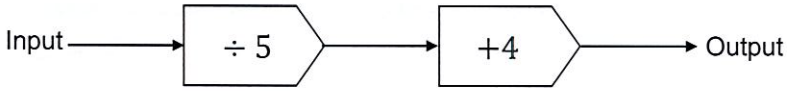
Circle the correct name of the 3D shape.

Triangle — Triangular prism

Square based pyramid — Triangular based pyramid

31

14 Here is a function machine.



14 (a) Calculate the **input** if the **output** is 7.2. **[2 marks]**

16 ← ×5 ← 3·2 ← −4 ← 7·2

Answer 16

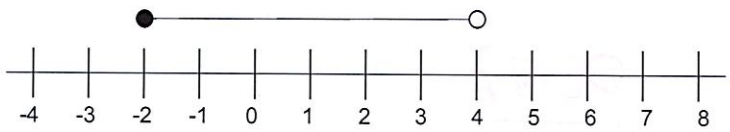
14 (b) If the **output** is $2x$. Write an expression for the **input**. **[2 marks]**

$5(2x-4)$ ← ×5 ← $2x-4$ ← −4 ← $2x$

Answer $5(2x-4)$

35

15 Circle the inequality that represents the solution set on the number line.



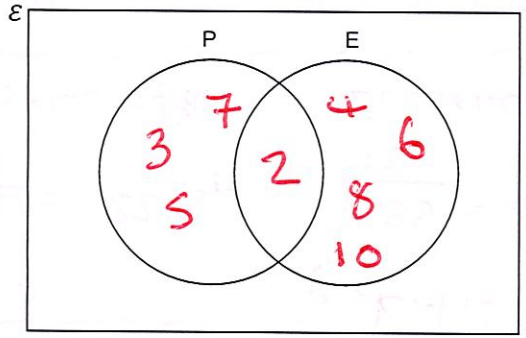
[1 mark]

$-2 < x < 4$ $\quad -2 \leq x < 4$

$-2 < x \leq 4$ $\quad -2 \leq x \leq 4$

36

16 Here is a Venn diagram



$\varepsilon = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

P = prime numbers (2) 3 5 7

E = even numbers (2) 4 6 8 10

Complete the Venn Diagram

[3 marks]

39

9

17 Here are the first three patterns in a sequence.

The patterns are made from triangles and pentagons.

Pattern number 1 Pattern number 2 Pattern number 3

17 (a) How many triangles are there in pattern number 5?

[2 marks]

P 1 (+1) 2 (+1) 3 4 5

T 5 8 11 14 17

(+3) (+3) (+3)

Answer 17

41

Faith says

"There are 11 triangles in pattern number 3. so there will be 33 triangles in pattern number 9."

17 (b) *Is Faith correct?*

Give a reason for your answer.

[1 mark]

☐ Correct ☑ Incorrect

$n^{th} = 3n + 2$

$9^{th} = 3(9) + 2 = 29$

So will be 29 NOT 33

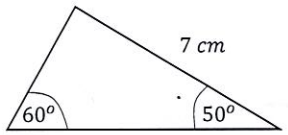
42

Do not write outside the box

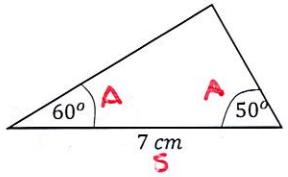
18 Here are four triangles

Not drawn accurately

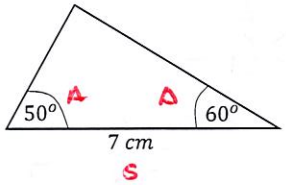
A



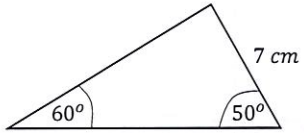
B



C



D



18 (a) Which two triangles are congruent? Circle your answers.

[1 mark]

A B C D

43

18 (b) Circle the reason for your answer to part (a).

[1 mark]

SSS ASA SAS RHS

44

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5

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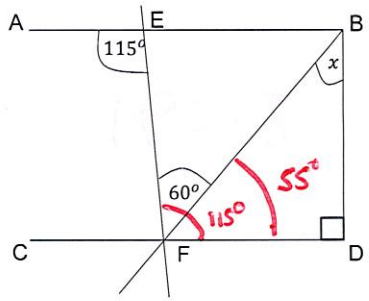
19 AB is parallel to CD.



Not drawn accurately

Show that angle $x = 35°$

[4 marks]

$A\hat{E}F = E\hat{F}D$ Alternate angles

$B\hat{F}D = 115 - 60 = 55°$

$D\hat{B}F = 180 - (90 + 55)$ Angles in a triangle

$= 180 - 145$

$x = 35$

Answer 35°

48

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20 (a) Expand and simplify $(x + 2)(x - 3)$

[2 marks]

$x^2 - 3x + 2x - 6$

Answer $x^2 - x - 6$

20 (b) Factorise and solve $x^2 + 6x + 8 = 0$

[2 marks]

$(x + 2)(x + 4) = 0$

$x + 2 = 0$ or $x + 4 = 0$

Answer $x = -2$ or $x = -4$

52

21 Express 1400 as a product of its prime factors in index form.

[3 marks]

1400
2 700
2 350
2 175
5 35
5 7

$2 \times 2 \times 2 \times 5 \times 5 \times 7$

Answer $2^3 \times 5^2 \times 7$

55

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11

22 The table shows some information about the heights of 120 adults.

do running total
120
60 | 60
61st 62nd

Height (h, cm)	Number of adults
$150 \leq h < 155$	12
$155 \leq h < 160$	26
$160 \leq h < 170$	31
$170 \leq h < 175$	37
$175 \leq h < 200$	14

MP

152.5 × 12 = 1824
157.5 × 26 = 4095
162.5 × 31 = 5037.5
172.5 × 37 = 6382.5
177.5 × 14 = 2485

19824

22 (a) In which class interval is the median?

Circle your answer.

[1 mark]

$150 \leq h < 155$ $155 \leq h < 160$ $160 \leq h < 170$

$170 \leq h < 175$ $175 \leq h < 200$

22 (b) Calculate an estimate for the mean height.

[3 marks]

Est mean $= \frac{19824}{120} = 165.2$

Answer 165.2

59

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22 (c) Kenan says

"30% of the adults measured are under 160cm tall."

Does the data support this statement?

You must show your working.

[2 marks]

☑ Yes ☐ No

$\frac{(12+26)}{120} \times 100 = \frac{38}{120} \times 100$

$= 0.316 \times 100$

$= 31.6\%$

61

23 Joe sells caricature portraits.

He currently adds 28% profit to the cost price.

He sells the portraits for £256 each.

He wants to increase the profit to 35% of the cost price.

How much should he sell each picture for?

[4 marks]

$100 + 28 = 128\%$

$128\% = £256$ ÷128

$1\% = 2$

$100\% = £200$ ×100

$100 + 35 = 135$ 1.35 ← Single multiplier

Answer $1.35 \times 200 = £270$

65

10

Do not write outside the box

24 The value of a house £V is given by

$$V = 125\,000 \times 1.004^t$$

24 (a) Write down the value of the house when $t = 0$

[1 mark]

$V = 125000 \times 1.004^0$

$= 125000 \times 1$

Answer 125000

24 (b) What is the value of the house after 4 years?

[1 mark]

$V = 125000 \times 1.004^4$

$= 125500$

Answer 125500

24 (c) After how many years will the house's value be above £130 000

[3 marks]

Years

8 $125000 \times 1.004^8 = 129056.45$

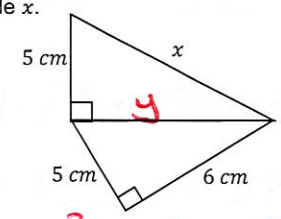
9 $125000 \times 1.004^9 = 129572.68$

10 $125000 \times 1.004^{10} = 130090.97$

Answer 130090

70

25 Find the length of the side x.



[3 marks]

$y^2 = 5^2 + 6^2$

$y^2 = 25 + 36$

$y = \sqrt{61}$

$y = 7.81$

$x^2 = (5)^2 + (7.81)^2$

$= 25 + 60.9961$

$x = \sqrt{85.9961}$

$= 9.2734$

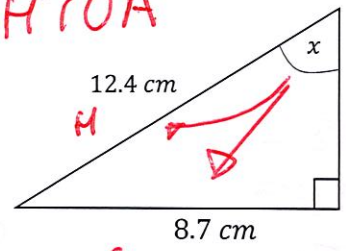
Answer 9.3 (6 1 d.p)

73

26 Calculate the size of the angle marked x. **[2 marks]**

SOHCAHTOA

Not drawn accurately



$\sin x = \frac{8.7}{12.4}$

$x = \sin^{-1}\left(\frac{8.7}{12.4}\right)$

Answer $x = 44.6$ (6 1 dp)

75

10

So needs same gradient

27 Circle the equation of a line that is parallel to $y = 2x - 5$ **[1 mark]**

$y = 5x - 2$ $\quad y = \frac{1}{2}x - 5$ $\quad y = 2x + 6$

$y = -2x + 5$ $\quad y = 5 - \frac{1}{2}x$

gradient

$y = mx + c$

y-intercept

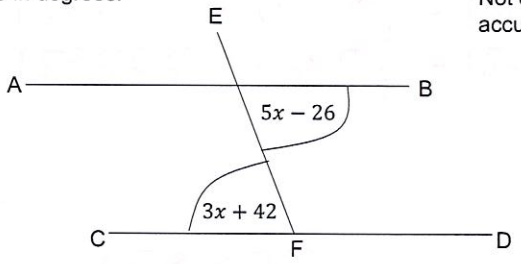
76

28 AB, CD and EF are straight lines.

AB is parallel to CD.

All angles are in degrees.

Not drawn accurately



Find the size of angle EFD **[4 marks]**

$5x - 26 = 3x + 42$ (Alternate angles equal)

$-3x$ $\quad 2x - 26 = 42$

$+26$ $\quad 2x = 68$

$\div 2$ $\quad x = 68/2$

Answer $x = 34$

80

End of Questions

5