PASS FUNCTIONAL SKILLS

Please write clearly in block capitals.

Centre number

Candidate number

Surname

Forename(s)

Candidate signature

Functional Skills Level 2
MATHEMATICS
Section A: Non-Calculator Paper
Section B: Calculator Paper

Paper A/B

Time allowed: 30 minutes / 1 hour 30 minutes

Materials
For this paper you must have:
*   mathematical instruments.
You **must not** use a calculator for section A.
You may use a calculator for section B.

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.
*   State the units of your answer where appropriate.

Information
*   The marks for questions are shown in brackets.
*   The maximum mark for section A is 15 and section B is 45.
*   The maximum mark for this paper is 60.
*   You may ask for more answer paper, graph paper and tracing paper.
    These must be tagged securely to this answer book.

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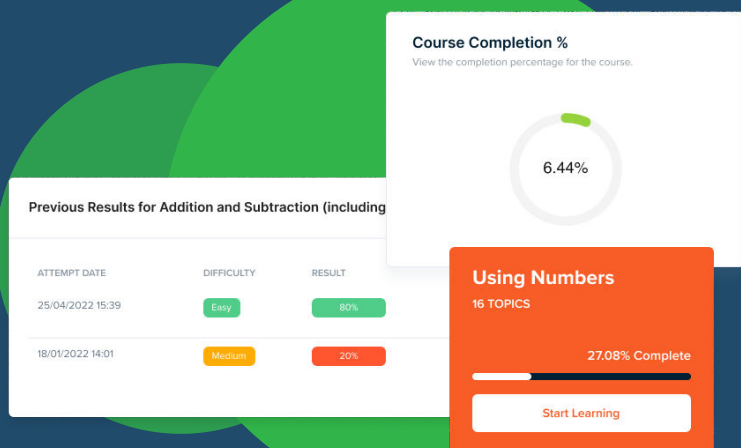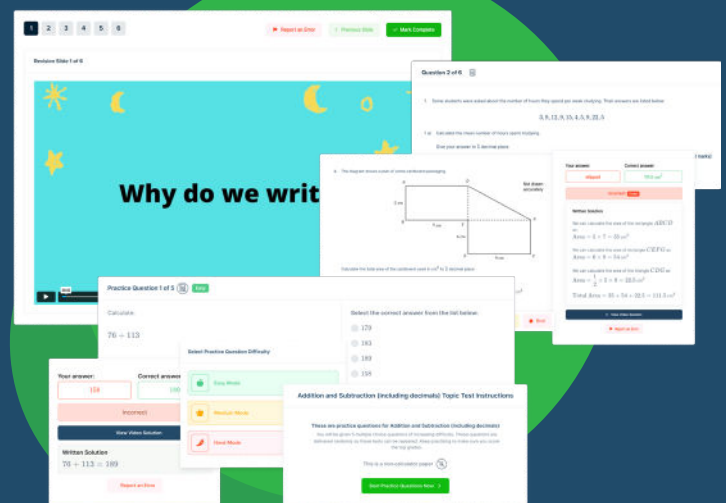*   In all calculations, show clearly how you work out your answer.

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Recommendations

Based on your results from this initial assessment, we estimate you are currently at Level 1.5.
From this diagnostic, we think one of the following courses would be suitable:

Functional Skills Maths Level 2
- 35 Topic Count
- 105 Tests
- 43 Mock Exams

Enrol Now

Pick my own

Functional Skills English Initial Assessment
English
- 13 Questions
- No Time Limit

Start Initial Assessment

Functional Skills Maths Initial Assessment
Maths
- 25 Questions
- No Time Limit
- Mixed Calculator

Start Initial Assessment

- ✅ Your answers are analysed to determine your Current Level
- ✅ Suggested courses for you to enrol on based on your calculated level
- ✅ Always know the level you are currently working at
- ✅ Determine when you are ready to sit your exam

- ✅ Explainer videos on every topic
- ✅ Quick-fire style mutiple choice questions
- ✅ Test your knowledge with exam-style questions
- ✅ Written solutions for all questions

Course Completion %
View the completion percentage for the course.

6.44%

Previous Results for Addition and Subtraction (including

ATTEMPT DATE	DIFFICULTY	RESULT
25/04/2022 15:39	Easy	80%
18/01/2022 14:01	Medium	20%

Using Numbers
16 TOPICS

27.08% Complete

Start Learning

- ✅ See your progress through as you progress through each topic area
- ✅ Get your average scores for practice questions, topic tests and mock exams
- ✅ View all practice question, topic test and mock exam attempts over time
- ✅ View historical attempts to analyse your progress over time

Or visit
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SECTION A : Non-Calculator

Answer ALL questions.
Write your answers in the spaces provided.

1 Write the following numbers in order of size.

$$3.2 \quad 3.27 \quad 3.72 \quad 3.702 \quad 3.02$$

[1 mark]

Answer $3.02, 3.2, 3.27, 3.702, 3.72$

2 Work out

$$1\frac{3}{5} + 2\frac{1}{4}$$

[2 marks]

$$1\frac{3}{5} = \frac{8}{5} \qquad 2\frac{1}{4} = \frac{9}{4} \qquad \frac{8 \times 4}{5 \times 4} = \frac{32}{20}$$

$$\frac{9 \times 5}{4 \times 5} = \frac{45}{20}$$

$$\frac{32}{20} + \frac{45}{20} = \frac{77}{20}$$

Answer $\frac{77}{20}$

3 The distance between two towns on a map measures 8 cm. The map has a scale of 1 : 25000

What is the actual distance between the two towns in km?

[1 mark]

$$1 : 25000$$
$$8 : 200000$$

$$200\,000 \text{ cm} = 2000 \text{ m} = 2 \text{ km}$$

Answer 2km

Turn over for next question

4

Turn over ▶

3

4   Calculate 6.402 + 3.545

[1 mark]

$$6\cdot 402 \,+$$
$$3\cdot 545$$
$$\overline{9\cdot 947}$$

Answer   9.947

5   The distance an object has moved from its starting point, d, after an amount of time, t, is given by the formula

$$d = 29t^2$$

where d is measured in metres and t is measured in seconds.

Estimate the distance the object has travelled after 5.1 seconds.

[3 marks]

$$d = 30 \times 5^2$$
$$= 30 \times 5 \times 5$$
$$= 750$$

Answer   750

6   Calculate 4335 ÷ 6

[1 mark]

$$0\ 7\ 2\ 2\ .\ 5$$
$$6\ \overline{\smash{)}\ 4\ ^4 3\ ^1 3\ ^5 5\ .\ ^3 0}$$

Answer   722.5

Turn over for next question

5

Turn over ▶

7 Some painters are planning on painting a shape on a wall. They have drawn a sketch of the painting below.

1.5 m

2.5 m

2 m

3.5 m

0.5 m

5 m
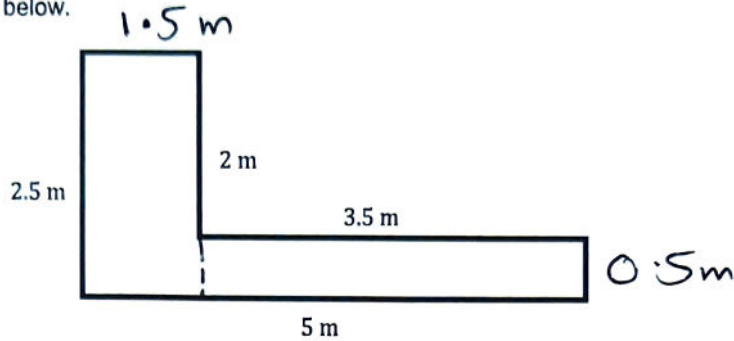
Calculate the area the painters are planning on painting.

[3 marks]

$1.5 \times 2.5 = 3.75$ m²

$3.5 \times 0.5 = 1.75$ m²

$Area = 3.75 + 1.75 = 5.5$ m²

Answer 5.5 m²

8 It would take 7 hours for 3 people to paint the shape on the wall. How long would it take to paint the shape on the wall if another person joins, assuming that they all paint at the same rate?

[3 marks]

$7 \times 3 = 21$ hours for 1 person

There are now $3 + 1 = 4$ people

$21 \div 4 = 5.25$ hours for 4 people

Answer 5.25

End of Section A

6

Turn over ▶

SECTION B : Calculator

Answer ALL questions.
Write your answers in the spaces provided.

6

9 Write in digits five hundred and seven thousand, seven hundred and twenty three.

[1 mark]

Answer _____ 507723

10 A manufacturing company produce metal fixings for a DIY retailer.
On one day the manufacturer produces 23040 fixings, of which 1920 are faulty.

What fraction of the fixings produced on this day were defective?
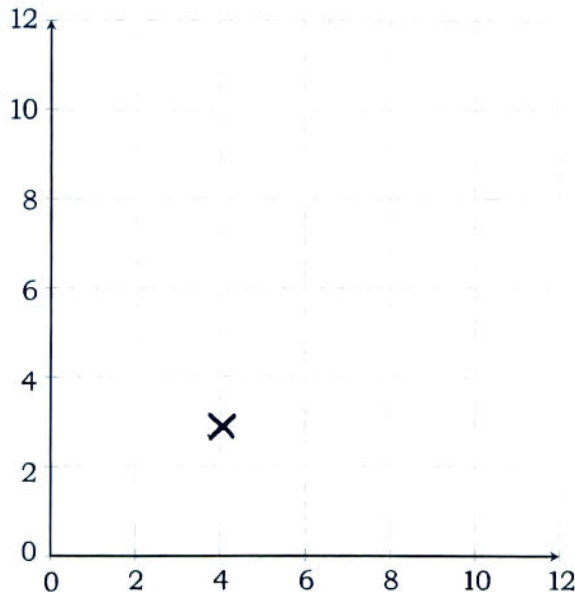Give your answer in its simplest form.

[2 marks]

$$\frac{1920}{23040} = \frac{1}{12}$$

Answer _____ $\frac{1}{12}$

11 Plot the coordinate (4,3) on the graph below.

[1 mark]

Turn over for next question

4

Turn over ▶

12 Darren has been given £6000 from his parents to put towards a car in the future. He
    is looking for the best savings account to put his money in for 2 years.

    He sees these two savings accounts:

    YTwo savings account

    Save for 2 years and receive
    4.25% interest

    Standard savings account

    2.5% interest added at the end
    of every year

    He says that he would have over £50 more after 2 years if he used the Standard
    savings account instead of the YTwo savings account.

    Is he correct?

    Show your working.

    [5 marks]

YTwo :   6000 × 1.0425 = £6255

Standard :   6000 × 1.025 × 1.025
                = £6303.75

6303.75 − 6255 = £48.75

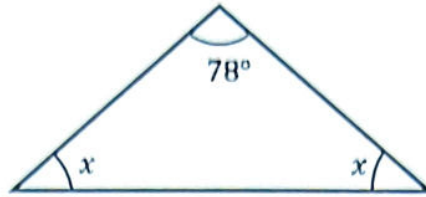No, he is not correct.

Answer _____ No _____

Turn over for next question

5

Turn over ▶

13   The diagram below shows an isosceles triangle. Find the missing angles in this isosceles triangle, labelled x.

[2 marks]

$$x + x = 180 - 78$$
$$2x = 102°$$
$$x = 102 \div 2 = 51°$$

Answer $51°$

14   Jessie measures the heights of her 7 friends, and works out that their mean height is 1.73 m. She measures her own height and works out that the mean height of all of them is 1.74 m.

What is Jessie's height?

[3 marks]

$1.73 \times 7 = 12.11$ m total height for 7 friends

$1.74 \times 8 = 13.92$ m total height for all 8

Jessie's height = $13.92 - 12.11 = 1.81$ m

Answer 1.81 m

Turn over for next question

5

Turn over ▶

15   Demi pre-booked a hire car to use on holiday in Spain. She paid £70 in total which
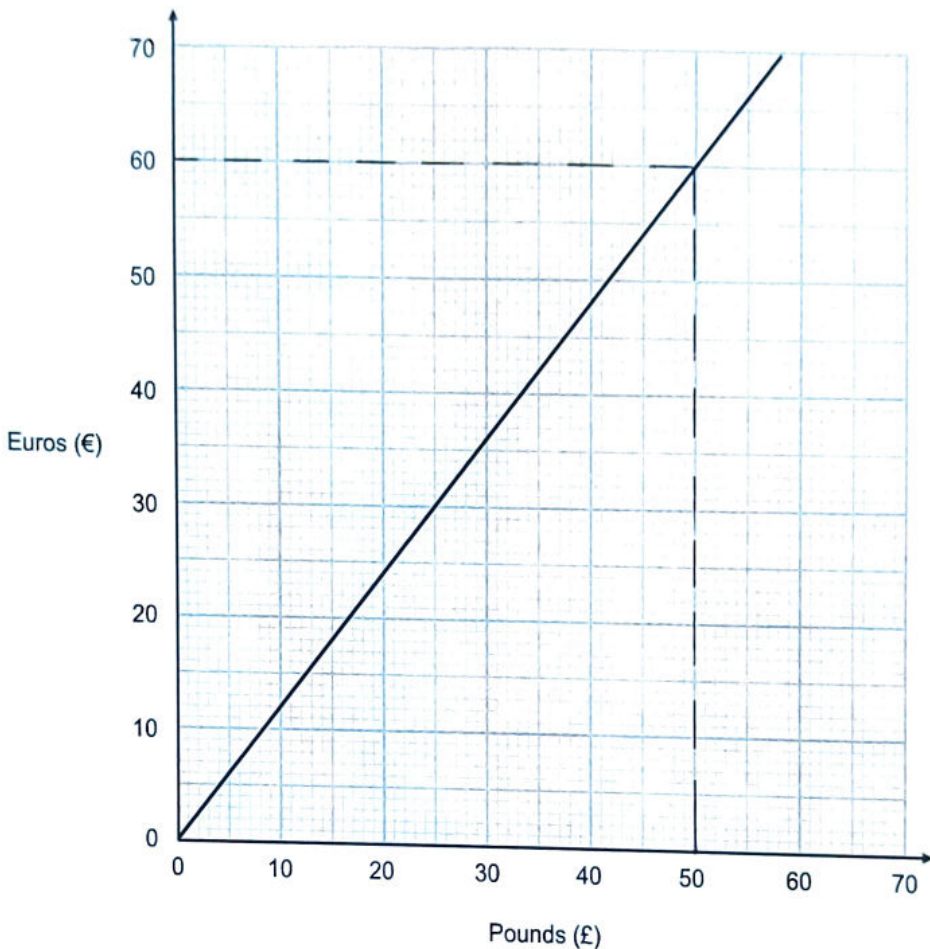gave her car hire for 7 days.

When she went on holiday, she realised that it may have been cheaper to hire the car
in Spain, instead of pre-booking it.

The cost of the car hire, in Euros (€), in Spain is calculated using this formula:

$$cost = 0.6(30 + 15d)$$

where d is the number of days the car is hired for.

Demi uses this conversion graph to convert between Pounds (£) and Euros (€).

Work how much Demi would have saved by paying for the car hire in Spain, instead
of pre-booking it. Give your answer in Pounds (£).

[5 marks]

Answer space provided on next page

5

Turn over ▶

15 cont

$$\text{cost} = 0.6(30 + 15 \times 7)$$
$$= \cancel{\text{€85}} \ \text{€}81$$

from the graph : £50 = €60
so £1 = 60 ÷ 50
= €1.20

$$81 \div 1.20 = £67.50$$

$$£70 - £67.50 = £2.50$$

Answer   £2.50

16   Whilst Demi is on holiday in Spain, she buys a coat that was reduced by 20% in a sale. If the sale price was €180, how much was its original price?

Give your answer in Euros (€).

[2 marks]

20% reduction = 0.8

$$180 \div 0.8 = \text{€}225$$

Answer   €225

Turn over for next question

2

Turn over ▶

17   The table gives information about the number of girls and boys in Years 9 and 10.

	Year 9	Year 10	Total
Boys	62	97	159
Girls	112	84	196
Total	174	181	355

Complete the two-way table and use this to find the probability that a student selected at random is a boy.

[4 marks]

$$\frac{159}{355}$$

Answer $\frac{159}{355}$

18   Susan makes fudge using 2 parts of chocolate to 3 parts of frosting. Susan makes a batch of fudge using 510 g of frosting.

She eats 10% of the fudge she has made, and then splits the remaining fudge into individual bars, each weighing 100 g.

How many individual bars of fudge can she make?

[3 marks]

1 part = 510 ÷ 3 = 170 g
Total parts = 2+3 = 5
Total fudge = 5 × 170 = 850 g
Amount after eaten = 850 × 0.9 = 765 g
Number of bars = 765 ÷ 100 = 7.65

Answer   7

Turn over for next question

7

Turn over ▶

19 Donald is a zookeeper. In 2018, he measured the weights of the 6 leopards that are kept in the zoo, and recorded his results in the table below.

Leopard	1	2	3	4	5	6
Weight (kg)	32	29	27	34	30	27

In 2021, the median weight of the leopards was 68 lbs.

1 kg = 2.20 lbs

Calculate the percentage change in the median weight of the leopards from 2018 to 2021.

[5 marks]

2018 median :   27 27 29 30 32 34

median = 29·5 kg

Median in lbs = 29·5 × 2·20 = 64·9 lbs

Percentage change = $\dfrac{68 - 64·9}{64·9} \times 100$

= 4·7765........ %

increase

Answer   4·78 % (2dp)

increase

Turn over for next question

20   A paperweight is shaped as a cylinder. The paperweight has a radius of 2 cm and a height of 5 cm.

The paperweight has a mass of 350 g. Calculate its density in g/cm^3.

Use $\pi = 3.14$.

[4 marks]

Area of circle = πr^2

= 3.14 × 2 × 2 ~~3.14 × 2²~~

= 12.56 cm²

Volume = 12.56 × h

= 12.56 × 5 = 62.8 cm³

Density = mass ÷ volume

= 350 ÷ 62.8

= 5.573... g/cm³

Answer   5.57 g/cm³ (2dp)

Turn over for next question

4

Turn over ▶

21   Nabeela travelled to London by train. Her journey was made up of two parts, including
     a short wait in between.

     One train into York and then another train into London.

     The first train departed at 07:05 and the journey lasted for 12 minutes.

     The second train departed at 07:27 and the journey lasted for 122 minutes.

     The total distance travelled was 197 miles.

     What was Nabeela's average speed for the entire journey?

     Give your answer in miles per hour (mph).

                                                                    [4 marks]

Journey time = 12+10+122 = 144 mins

~~░░░~~   144 mins = 144÷60 = 2.4 hours

Speed = distance ÷ time
      = 197 ÷ 2.4
      = 82.0833... mph

     Answer _____ 82.08 mph (2dp)

                  Turn over for next question

                                                                    4

15

22 A shop has three offers on cola.

Offer 1	Offer 2	Offer 3
2 litre bottle	4 × 330 ml cans	500 ml bottle
Price: £1.80	Price: £2.20	Price: 60p
Offer: 10% off	Offer: half price	Offer: $\frac{1}{4}$ off

Which offer provides the best value for money?

Show your working.

[4 marks]

Offer 1: $(1.80 \times 0.9) \div 2 = £0.81$ per litre

Offer 2: $(2.20 \times 0.5) \div (0.330 \times 4)$
$= £0.83$ per litre

Offer 3: $(0.60 \times 0.75) \div 0.5$
$= £0.90$ per litre

Offer 1 is the best value for money

Answer _____Offer 1_____.

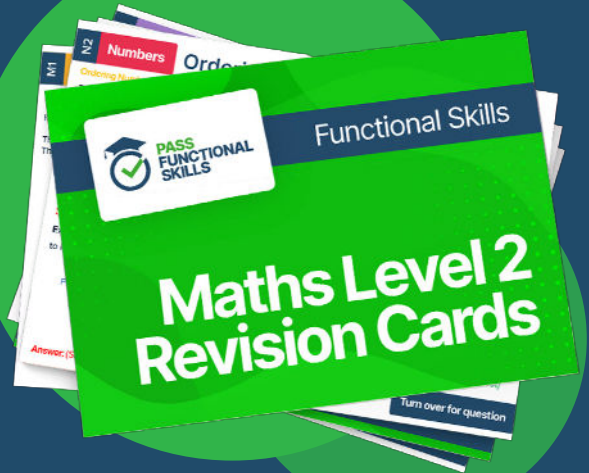**End of Section B**

4
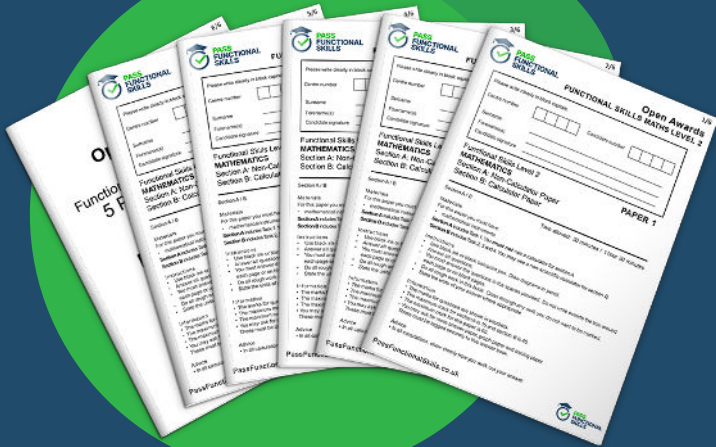
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