

First name	
Last name	
School	

CE AT 13+

FOUNDATION MATHEMATICS

ISEB

Independent Schools
Examinations Board

Specimen Non-Calculator Paper

Date

Time allowed: 60 minutes

Instructions

Answer as many questions as you can.

You must show all your working, or you may receive no marks.

You are encouraged to cross out mistakes neatly, not erase them.

Answers given as fractions should be reduced to their lowest terms.

Answers should include correct units where necessary.

A row of dots shows where to write an answer.

Grey boxes are for your working, but extra working can be done anywhere on the paper.

If there is no row of dots, you should double underline your answer with your working in a grey box.

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1. (a) Complete the calculations.

		(i)	7	3	4						(ii)	8	7	0				
			5	8	7	+						1	5	6	−			
			<hr style="border: 1px solid black;"/>									<hr style="border: 1px solid black;"/>						
			<hr style="border: 1px solid black;"/>									<hr style="border: 1px solid black;"/>						

[4]

- (b) Calculate

- (i) $385 \div 5$

- (ii) 74×3

[4]

2. Circle the bigger number in each pair.

- (a) 68 86

- (b) 54 540

- (c) 4.16 4.8

[2]

3. Write these numbers in the correct columns.

The diagram shows six numbers on the left, each with an arrow pointing to a specific column in a 6x7 grid on the right:

- 526**: Points to Column 3.
- 8**: Points to Column 1.
- 73**: Points to Column 2.
- 1.4**: Points to Column 4.
- 8200**: Points to Column 5.
- 2.75**: Points to Column 6.

		5	2	6		

[3]

4. (a) Match each fraction to a decimal with a line.

$$\frac{1}{4}$$

0.5

$$\frac{3}{4}$$

0.25

$$\frac{1}{2}$$

7.5

$$7\frac{1}{2}$$

0.75

[4]

- (b) (i) Write **0.9** as a fraction. (ii) Write **0.03** as a fraction.

.....

.....

[2]

- (c) Write these to the nearest whole number.

(i) 17.3

(ii) 3.82

(iii) 4.09

≈

≈

≈

[3]

- (d) Write the next two numbers.

2.7 , 2.8 , 2.9 , ,

[2]

5. True or False? (Write **T** or **F**)

(a) $12 - 2 = 2 - 12$

(b) $15 \times 7 = 7 \times 15$

(c) $73 \div 4 = 4 \div 73$

(d) $9^2 = 9 \times 2$

[2]

6. Circle the correct operation for each question.

(a) What is the sum of 8 and 3?

8×3

$3 - 8$

$8 - 3$

$8 \div 3$

$8 + 3$

[1]

(b) Tom buys 12 bags of nuts.

He buys 480 nuts altogether.

How many nuts are in each bag?

12×480

$12 \div 480$

480×12

$480 \div 12$

$480 - 12$

[1]

(c) Sarah eats 6 chocolates a day.

How many chocolates will she eat in 150 days?

$150 \div 6$

$6 \div 150$

150×6

$150 - 6$

$6 - 150$

[1]

(d) How much bigger is 74 than 28?

$74 + 28$

$28 - 74$

$28 + 74$

74×28

$74 - 28$

[1]

(ii) $\frac{5}{6} - \frac{2}{3}$

[4]

10. Use this $24 \times 18 = 432$ to work out these

(a) 24×19

=

(b) 48×18

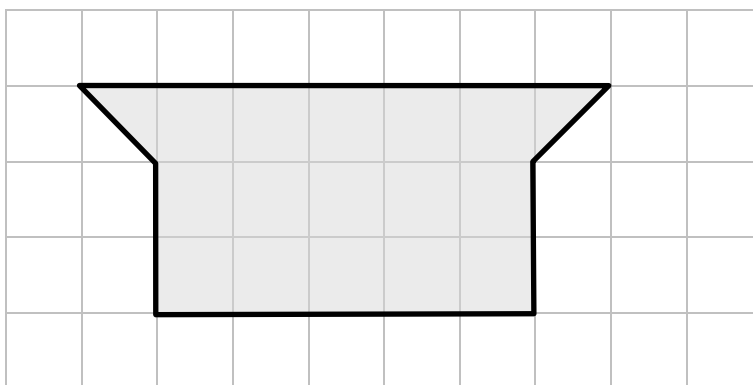
=

(c) $432 \div 18$

=

[3]

11. Write down the **area** of the shape drawn on this centimetre grid.



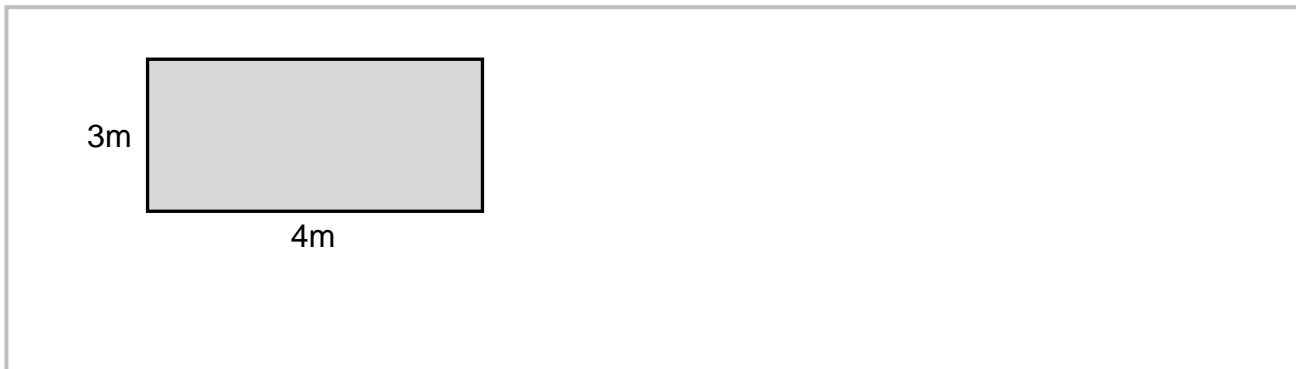
Area =

[2]

12. Change $\frac{4}{5}$ to a decimal

[2]

13. Find the **area** of this rectangle.



[3]

14. (a) Complete these (i) $\frac{2}{5} = \frac{\quad}{15}$ (ii) $\frac{3}{25} = \frac{\quad}{100}$

[2]

(b) Which is bigger? $\frac{70}{80}$ or $\frac{7}{8}$

Circle the correct answer.

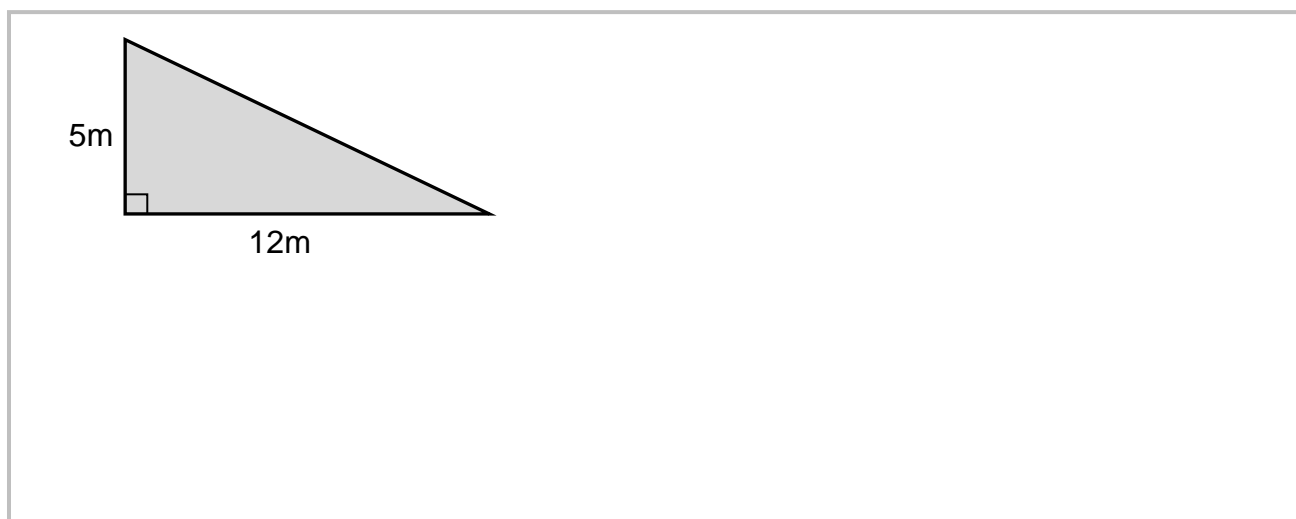
$\frac{70}{80}$	$\frac{7}{8}$	they are the same size
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[1]

(c) Reduce to lowest terms. $\frac{12}{16}$

[2]

15. Find the **area** of this triangle.

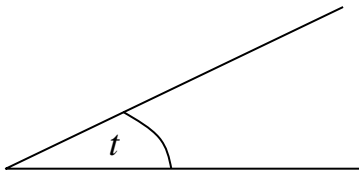


[3]

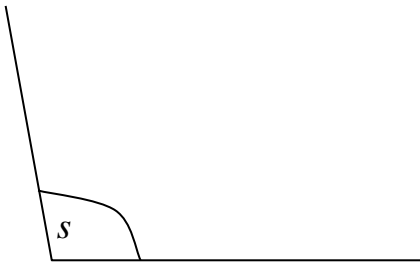
16. Change 15% to a fraction in lowest terms.

[2]

17. (a) **Estimate** the size of these angles.



$t \approx \dots\dots\dots^\circ$



$s \approx \dots\dots\dots^\circ$

[3]

(b) Calculate the size of each lettered angle.

Two intersecting lines. One angle is labeled 83° and the adjacent angle is labeled x .

A circle with a central angle labeled p . A sector of the circle is labeled 40° .

A straight line with a point. One angle is labeled 47° and the adjacent angle is labeled y .

A triangle with interior angles labeled 81° , q , and 65° .

Two parallel horizontal lines intersected by a transversal. The top-right angle is labeled 54° and the bottom-left angle is labeled m .

[8]

18. **Estimate** the value of

$$498 \times 71$$

[3]

19. Solve the equations.

(a) $5a + 2 = 17$

(b) $3b - 5 = 22$

[4]

20. Work out

(a) $4 + 3 \times 5$

(b) $2 \times 5 + 7$

(c) $20 - 4 \times 3 + 1$

[6]

21. (a) Sara and Jess share their hats in the ratio **4 : 7**

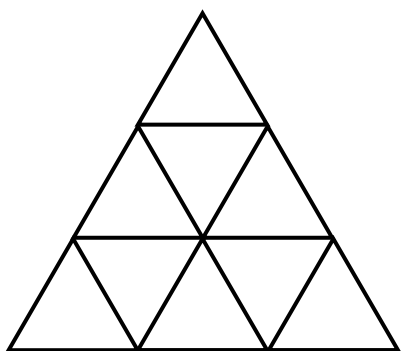
If Sara has 20 hats, how many has Jess?

[3]

- (b) Write the ratio **16 : 20** in its simplest form.

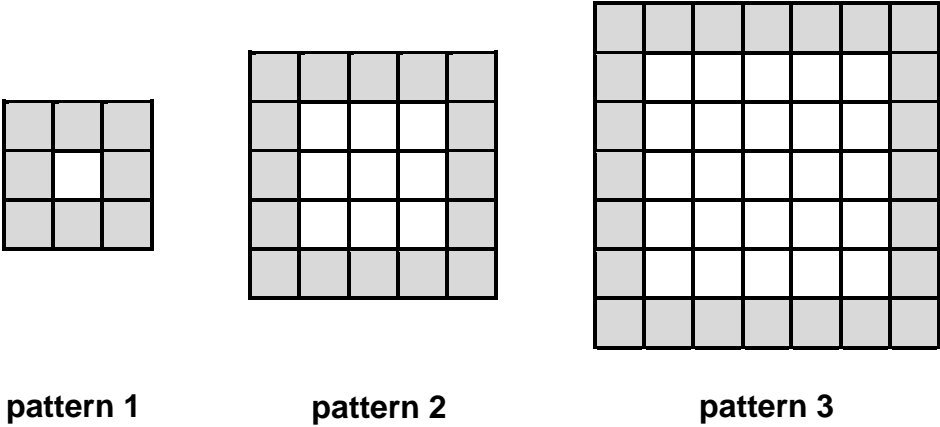
[2]

22. How many triangles are here altogether?



[3]

23. Look at this sequence of patterns.
 There are small white squares and small grey squares.



(a) How many small white squares are there in **pattern 3**?

(b) Work out the number of small white squares in **pattern 6**

(c) Work out the number of small grey squares in **pattern 10**