First name	
Last name	
School	

CE AT 13+

FOUNDATION MATHEMATICS

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.

1. (a) Complete the calculations.

(i)

$$\begin{array}{r} 734 \\ +\ 587 \\ \hline \end{array}$$

(ii)

$$\begin{array}{r} 870 \\ -\ 156 \\ \hline \end{array}$$

[4]

(b) Calculate

(i) 385 ÷ 5

(ii) 74 x 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.

526

8

73

1.4

8200

2.75

		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]

7. Find $\frac{2}{5}$ of 15

[2]

8. Calculate

(a) $53.8 + 2.47$ (b) $83 - 8.3$

[4]

9. (a) Which is bigger? $\frac{3}{4}$ or $\frac{3}{8}$

Circle the correct answer.

$\frac{3}{4}$	$\frac{3}{8}$	they are the same size

[1]

(b) Calculate

(i) $\frac{3}{8} + \frac{1}{8}$ (ii) $\frac{5}{6} - \frac{2}{3}$

[4]

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

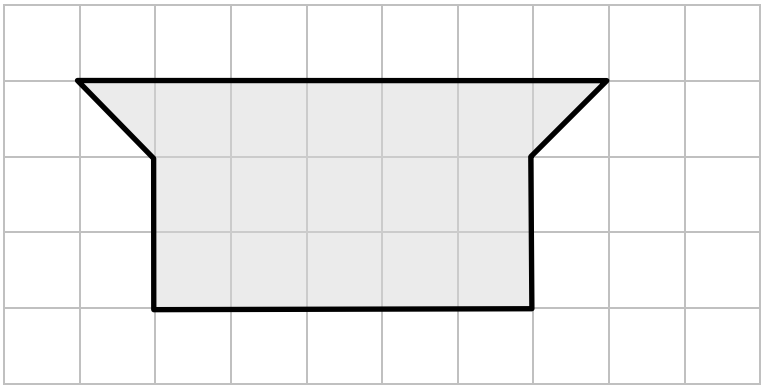
(a) 24×19 = ……

(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.

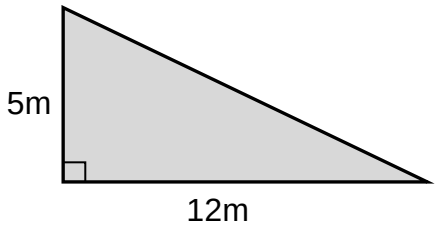
$\frac{70}{80}$	$\frac{7}{8}$	they are the same size

[1]

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

[2]

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

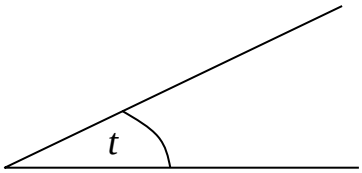


[3]

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

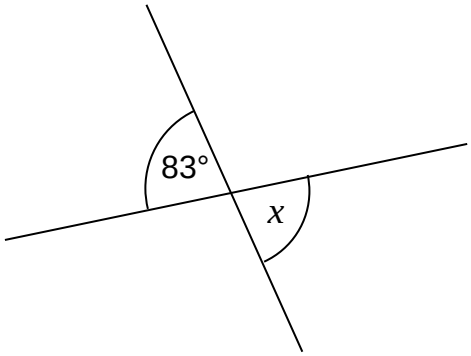
[2]

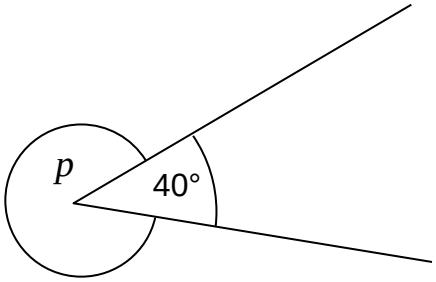
17. (a) **Estimate** the size of these angles.

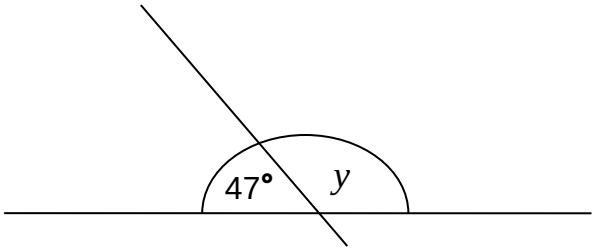


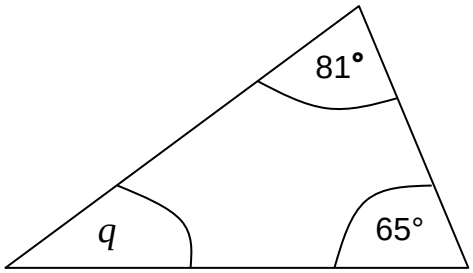
$t \approx$ ……..° $s \approx$ ……..° [3]

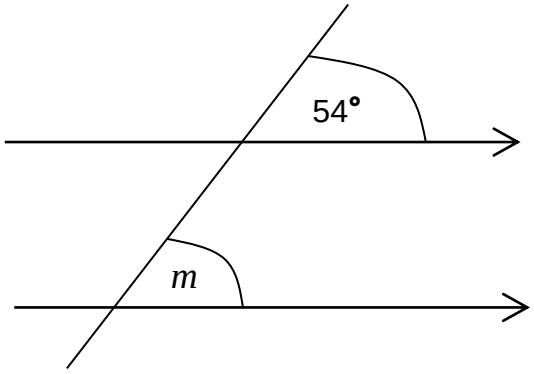
(b) Calculate the size of each lettered angle.











[8]

18. **Estimate** the value of

498 x 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**

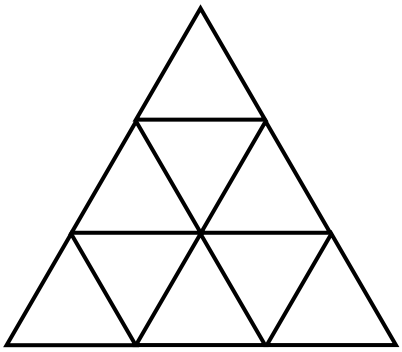
If Sara has 20 hats, how many has Jess?

[3]

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

[2]

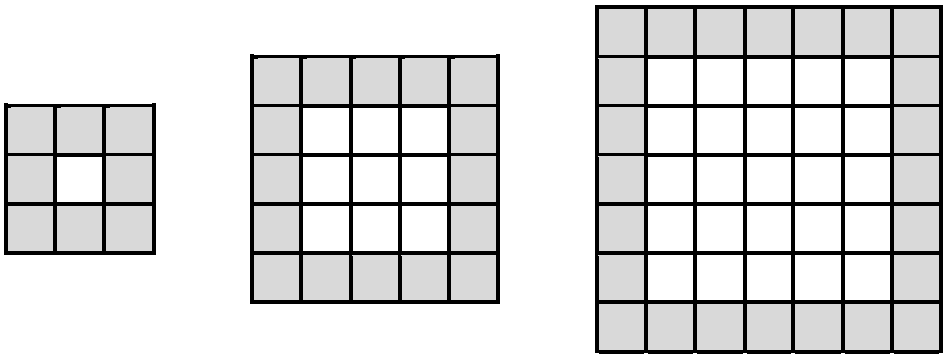
22. How many triangles are here altogether?



[3]

23. Look at this sequence of patterns.

There are small white squares and small grey squares.



pattern 1 **pattern 2** **pattern 3**

(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**

[7]

(Total: 100 marks)