ST GEORGE'S ASCOT

Time allowed: 1 hour
(Extra Time: 15 mins)

Total marks available: 78

Name: …… Form: ……

*Calculators **may** be used.*

You may NOT borrow any equipment from another girl.

Instructions:

- *Try to answer all of the questions in the paper.*
- *If stuck on a question, move on to the next one – you can always go back at the end if you have time.*
- *Answer all questions in the spaces provided on this paper. Rough paper and tippex are not allowed – if you make a mistake neatly cross it out and write in your corrections.*
- *You must write in black or blue ink. Pencil must be used for any graphs or diagrams.*
- *Show all working out – marks may be awarded for correct method even if your final answer is wrong. Without sufficient working, correct answers may not be awarded full marks.*

Write your final answers clearly. Illegible or ambiguous answers may not be marked.

1. Work out the following. (you will get NO marks for using a calculator on this question)

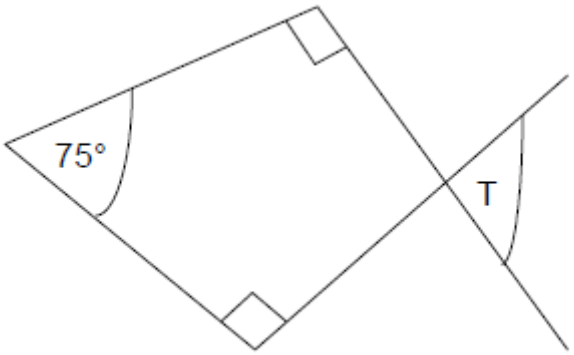
$$2\frac{1}{3} - 1\frac{3}{7}$$

Answer_____(2)

2. What is the **sum** of the **interior angles** of an octagon?

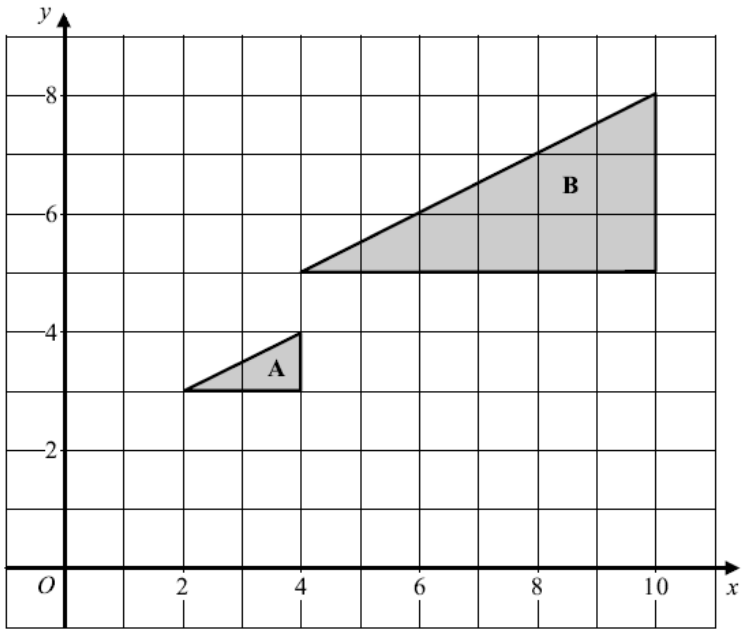
Answer_____(3)

3. Calculate the angle marked T.



T = ...(2)

4.



Describe fully the **single** transformation which maps triangle **A** onto triangle **B**.

.....

.....

(Total 3 marks)

5. (a) Write $3^8 \times 3^6$ as a power of 3

.....

(1)

(b) Write $\frac{7^5}{7^2}$ as a power of 7

.....

(1)

(c) $\frac{5^n \times 5^3}{5^7} = 5^2$

Find the value of n.

$n =$ .....

(2)

---

6. Estimate the answer to the following. (No marks will be given for long calculations or the use of a calculator)

$$\frac{518 \times 91}{42}$$

Answer_____(2)

---

7. Find the formula n^{th} term for the following sequence: $1, 6, 11, 16, 21, \ldots \ldots$

Answer_____(2)

---

8. A counter is picked from a bag containing 15. There are 3 red, 1 black, 7 blue and the remaining are green. Work out the probability of picking :

a) A red counter

Answer_____(1)

b) A yellow counter

Answer_____(1)

c) A red, blue or green counter

Answer_____(1)

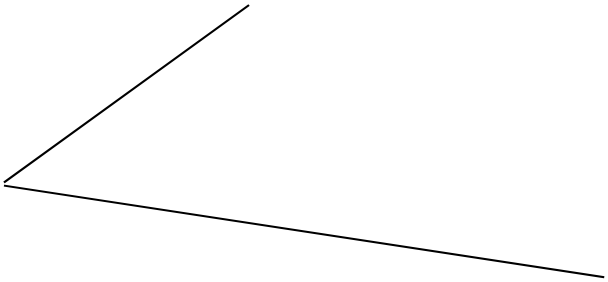
d) Not picking a red counter

Answer_____(1)

9. Express 225 as the product of its prime factors

……(2)

10. Construct the bisector of this angle.



(2)

11. (a) Simplify $5p - 2q + 3p - 4q$

.....

(2)

(b) Expand $3(2t + 5)$

.....

(1)

(c) Expand $y(y^2 - 3y)$

.....

(2)

(d) Expand and simplify $(x + 3)(x + 7)$

.....

(2)

12. Rectangular tiles have width x cm and height $(x + 7)$ cm.

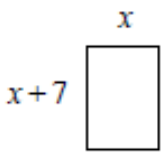


Diagram **NOT** accurately drawn

Some of these tiles are used to form a shape.
The shape is 6 tiles wide and 4 tiles high.

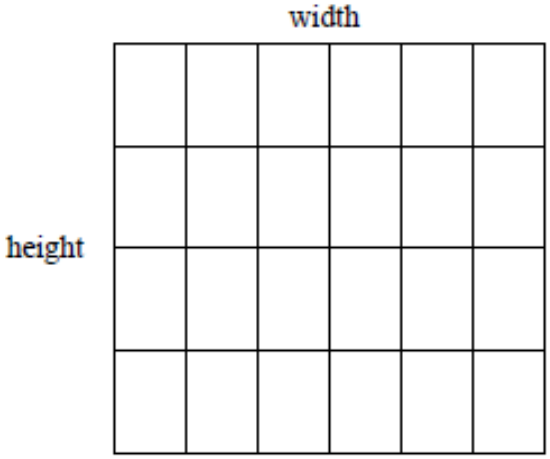


Diagram **NOT** accurately drawn

(a) Write down expressions, in terms of x, for the width and height of this shape.

width = ... cm

height = ... cm

(2)

(b) The width and the height of this shape are equal.

(i) Write down an equation in x.

.....

(ii) Solve your equation to find the value of x.

x =.....

(4)

(Total 6 marks)

13. **Without** using a calculator, answer the following questions.
You must show **full working** (or explain how you worked out your answer) to gain marks.

(a) Write $\frac{9}{20}$ as a percentage

Answer_____(1)

(b) Find $\frac{5}{8}$ of £6400

Answer_____(1)

14. The sale price of a pair of shoes is £42 after a 23% reduction, what was the original price of the shoes? Round off your answer to the nearest pence.

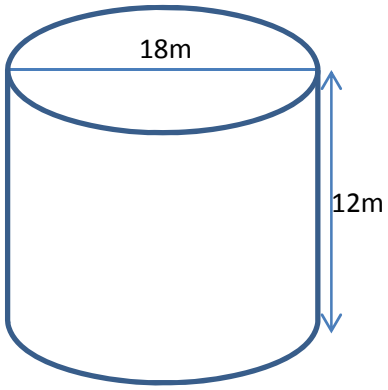
Answer_____(2)

15. Solve 3(j + 4) = 24

Answer_____(2)

16. The diagram shows a cylinder of diameter 18m and length 12m. Work out the following giving correct units for your answer to (b) and (c) **correct unit.** Use **π = 3.14** in your calculation. (Diagram are not drawn to scale)

a) Shade the cross-section of the cylinder.



b) Work out the area of cross section you shaded in (a)

Area of cross section = _____(2)

c) Work out the volume of the cylinder

Volume of the cylinder = _____(2)

17. ***Without using a calculator*** show that:

a. $611 \div 13 = 47$

Answer_____(2)

b. $312 \times 43 = 13416$

Answer_____(2)

18. The mean of three numbers is 16 and their range is 10. If their median is 18, what are the three numbers?

Answer…… (3)

19. Using your calculator work out the answers to the sums below

(a) Find the value of 3.9^2

.....

(1)

(b) Find $\sqrt{6.76}$

.....

(1)

(c) Find the cube root of 2744

.....

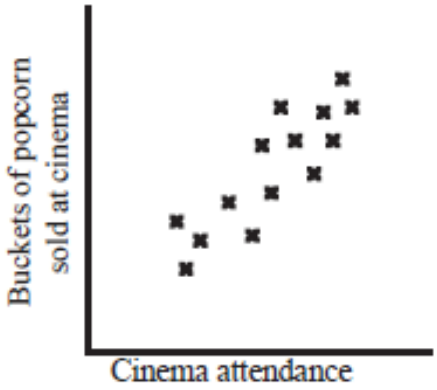
(1)

(d) Work out the value of $\frac{6.46}{1.8+1.6}$

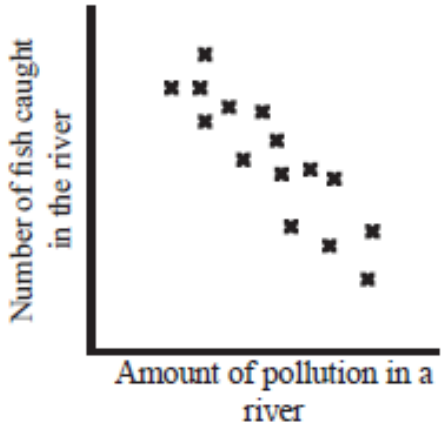
.....

(2)

20. a) Describe the correlation shown in each of the graphs below.



Answer_____(2)



Answer_____(2)

---

21. Find the mean from this frequency table :

Petals on a daisy	9	10	11	12	13
Frequency	9	14	17	21	6

Answer_____(3)

---

22. Given that y is **directly proportional** to x. When x = 2, y = 6

a) Work out a formula for y in terms of x.

Answer_____(2)

b) Use your formula in (a) to work out y when x = 3.5

Answer_____(2)

c) Use your formula in (a) to work out x when y = 15.9

Answer_____(2)

23. Wyn and Jay are using their wheelchairs to measure distances.

(a) The large wheel on **Wyn's** wheelchair has a **diameter** of **60cm.**
Wyn pushes the wheel round **exactly** once.

Calculate how far Wyn has moved.

Show your working.

..... cm

2 marks

(b) The large wheel on **Jay's** wheelchair has a **diameter** of **52cm.**

Jay moves her wheelchair forward **950cm.**

Calculate how many times the large wheel goes round. Show your working.

..... Times

2 marks

End of Paper