

**Cardinal Newman  
Catholic School**  
Holy Cross Catholic Multi Academy Company

**Year 10 into Year 11  
SUMMER HOMEWORK**

Topic	RAG
Linear equations & inequalities	
Algebra skills – Factorise, expand & simplify	
Area & perimeter – Quadrilaterals and circles	
Volume & Surface Area	
Ratio	
Formulae - Substitution	
Standard form	
Rounding, estimating & bounds	
Percentages	
Vectors	

**Q1.**

Work out 65% of 300

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Answer \_\_\_\_\_

**(Total 3 marks)**

**Q2.**

Work out the percentage increase from 80 to 280

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Answer = \_\_\_\_\_ %

**(Total 3 marks)**

**Q3.**

Increase 4200 by 38%

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Answer \_\_\_\_\_

**(Total 2 marks)**

**Q4.**

Which statement is true?

Circle your answer.

10% of 50 = 50% of 20

10% of 10 = 20% of 20

10% of 20 = 20% of 10

10% of 40 = 25% of 100

(Total 1 mark)

**Q5.**

What is 18 as a percentage of 72?

Circle your answer.

18%

20%

25%

40%

(Total 1 mark)

**Q6.**

Circle the fraction which is equal to 0.25

$\frac{1}{40}$

$\frac{2}{5}$

$\frac{3}{12}$

$\frac{4}{100}$

(Total 1 mark)

**Q7.**

Circle the decimal which has the same value as  $\frac{3}{5}$

0.06

0.35

0.6

3.5

(Total 1 mark)

**Q8.**

Circle the fraction equal to 0.12

$\frac{1}{12}$

$\frac{3}{25}$

$\frac{1}{8}$

$\frac{6}{5}$

(Total 1 mark)

**Q9.**

Circle the decimal that is greater than  $\frac{3}{10}$  and less than  $\frac{2}{5}$

0.32

0.035

0.4

0.24

(Total 1 mark)

**Q10.**

Complete the table to show equivalent fractions and percentages.

Fraction	Percentage
$\frac{1}{2}$	50%
$\frac{3}{10}$	
	43%
$\frac{5}{2}$	

(Total 3 marks)

**Q11.**

(a) Write 30% as a fraction.

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Answer \_\_\_\_\_

(1)

(b) Write 80% as a decimal.

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Answer \_\_\_\_\_

(1)

(c) Circle the **two** values that are equivalent to  $\frac{2}{3}$

$\frac{66}{100}$

0.6

60%

$\frac{66}{99}$

0.6

(2)

(Total 4 marks)

**Q12.**

Write these values in order, starting with the smallest.

$$\frac{1}{10}$$

0.2

11%

You **must** show your working.

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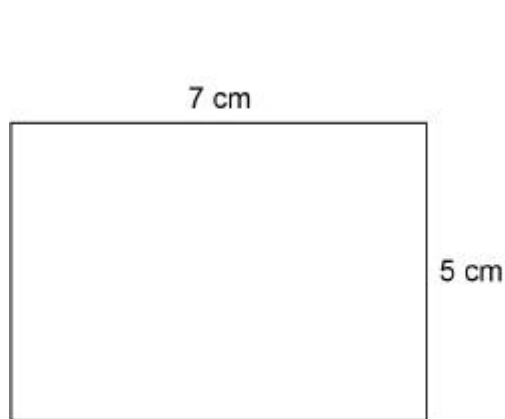
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Answer \_\_\_\_\_

**(Total 3 marks)**

**Q13.**

Here is a rectangle.



Not drawn  
accurately

Work out the perimeter.

Circle your answer.

12 cm

24 cm

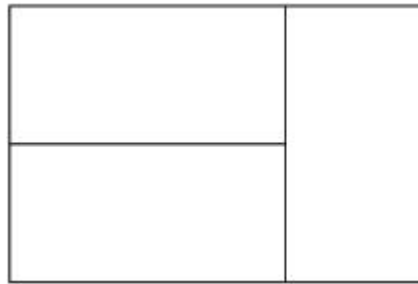
35 cm

70 cm

**(Total 1 mark)**

**Q14.**

A large rectangle is made by joining three identical small rectangles as shown.



Not drawn  
accurately

The perimeter of one small rectangle is 15 cm

Work out the perimeter of the large rectangle.

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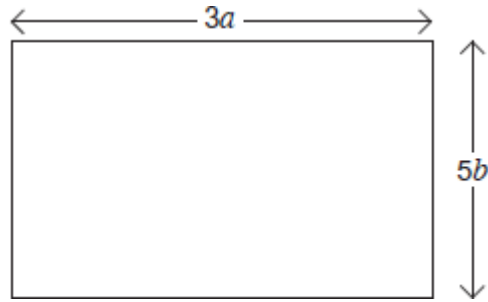
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Answer = \_\_\_\_\_ cm

**(Total 4 marks)**

**Q15.**

The diagram shows a rectangle.



- (a) Write down an expression for the **perimeter** of the rectangle.

Simplify your answer.

\_\_\_\_\_

Answer \_\_\_\_\_

(2)

- (b) Write down an expression for the **area** of the rectangle.

Simplify your answer.

\_\_\_\_\_

Answer \_\_\_\_\_

(2)

- (c) You are given that  $a$  and  $b$  are prime numbers.  
The **area** of the rectangle is  $315 \text{ cm}^2$

Work out the values of  $a$  and  $b$ .

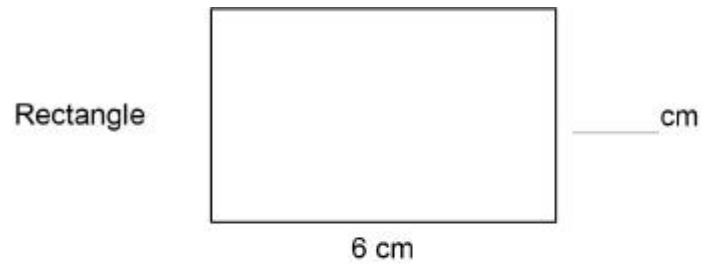
Answer \_\_\_\_\_ cm and \_\_\_\_\_ cm

(2)

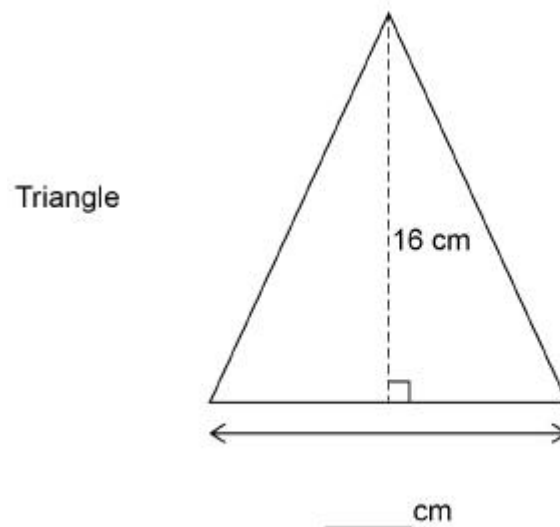
**(Total 6 marks)**

**Q16.** Each shape below has an area of  $24 \text{ cm}^2$

Complete the missing lengths.



Not drawn accurately



(Total 3 marks)

**Q17.**

Solve  $4x = 8$

Circle your answer.

$x = 0.5$

$x = 2$

$x = 4$

$x = 32$

(Total 1 mark)

**Q18.**

Solve  $x - 8 = 5$

Circle your answer.

$x = -13$

$x = -3$

$x = 3$

$x = 13$

(Total 1 mark)



**Q19.** Solve  $6x - 11 = 13$

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$x =$  \_\_\_\_\_

**(Total 2 marks)**

**Q20.** Solve  $4x - 3 = 14$

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$x =$  \_\_\_\_\_

**(Total 2 marks)**

**Q21.** Solve  $\frac{x}{3} - 9 = 12$

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$x =$  \_\_\_\_\_

**(Total 2 marks)**

**Q22.**

$\mathbf{c} = \begin{pmatrix} 4 \\ 9 \end{pmatrix}$

$\mathbf{d} = \begin{pmatrix} 2 \\ -5 \end{pmatrix}$

Work out  $4\mathbf{c} + 3\mathbf{d}$

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Answer  $\left( \quad \right)$   
**(Total 2 marks)**

**Q23.**

$$\mathbf{a} = \begin{pmatrix} 2 \\ 7 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$$

Work out  $3\mathbf{a} + \mathbf{b}$

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Answer  $\left( \quad \right)$

**(Total 2 marks)**

**Q24.**

$$\mathbf{a} = \begin{pmatrix} 6 \\ -10 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} -1 \\ 2 \end{pmatrix} \quad \mathbf{c} = \begin{pmatrix} -4 \\ 7 \end{pmatrix}$$

(a) Work out  $\mathbf{a} + \mathbf{b} + \mathbf{c}$

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Answer  $\left( \quad \right)$

(2)

(b) Show that  $\mathbf{a} + 2\mathbf{c} = k\mathbf{b}$ , where  $k$  is an integer.

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(2)

(Total 4 marks)