

6. If $x = -2, y = 4, z = -3$ find $xyz - 3x^2$

Answer.....

7. Calculate $3\frac{1}{3} \times 3\frac{1}{5}$

Answer.....

8. Continue the patterns, giving the next two terms each time

(a) 2, 3, 5, 7, 11, 13, 17,,

(b) $x, 2x + 3, 3x - 6, 4x + 9, \dots, \dots$

(c) 2, 5, 10, 17, 26, 37,,

(d) 36, 18, 12, 9, 6, 4,,

(e) 20, 10, 5, 2.5,,

9. Money in a bank account attracts interest at a rate of 5% per year. If I put £120 into this account, how much will it be worth after 2 years?

Answer.....

10. Simplify

(a) $5xy - 9yx$

Answer.....

(b) $6p^3 \times 7pq$

Answer.....

(c) $24z^5 \div 6z^3$

Answer.....

(d) $6(2p - 4q) - 9(3p - 4q)$

Answer.....

11. Factorise

(a) $18xy^2 - 9x^2y$

Answer.....

(b) $x^2 + 3x - 28$

Answer.....

12. 6 men take 8 days to dig a hole. How long does it take

(a) 3 men to dig 1 hole

Answer.....

(b) 2 men to dig 1 hole

Answer.....

(c) 2 men to dig 7 holes

Answer.....

13. The three angles in a triangle are x , $2x$ and $3x$. What kind of triangle is this? Explain your answer fully.

Answer.....

14. The mean (average) height of 4 girls is 1.63 m. What is the total height of the 4 girls?

Answer.....

15. How many different ways can you arrange the letters in the following word?

ROBIN

(you should show your method very clearly as we are more interested in HOW you did the problem than your answer!)

2010/4th B

Oundle School

Your name:

Examination for Entrance to the Fourth Form
Mathematics

Section B
30 minutes

*Write ALL of your working on this paper. No other paper may be used. The answers alone **are of no use**. Show enough working on each question to make it clear how you reached your answer.*

You MAY use a calculator for this section CALCULATORS ALLOWED

1. A ferry carries cars and lorries. For every 3 cars there are 20 lorries. If there are 483 cars and lorries on board in total, how many cars are there on the ferry?

Answer.....

2. Use your calculator to find the value of $\sqrt{\frac{27.8}{17.3-8.16}}$. Write down all of the figures on your calculator display.

Answer.....

3. Solve the following equations

(a) $\frac{2a^2}{3} + 3 = 27$

Answer $a = \dots\dots\dots$

(b) $3.5b + 12 = 2b + 19.5$

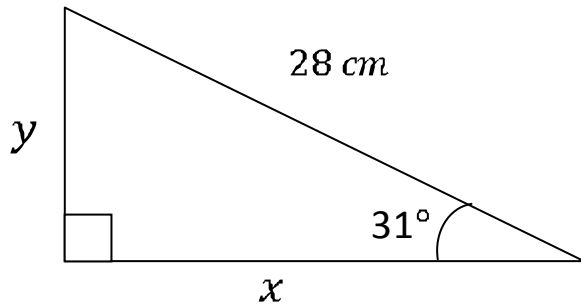
Answer $b = \dots\dots\dots$

4. Find 12.5% of £20

Answer $\dots\dots\dots$

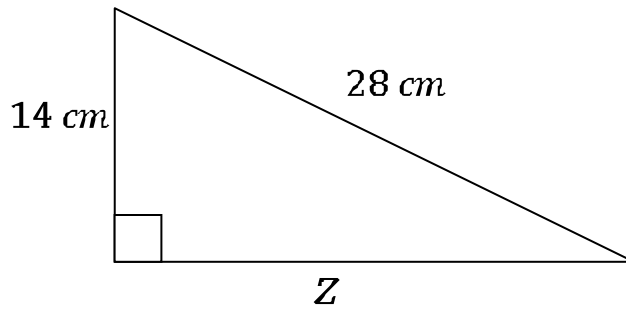
5. In each of the following triangles find the values of x , y and z

(a)



Answer.....

(b)



Answer.....

6. If $a = -5$, $b = 3$ and $c = 2$ calculate

(a) $\frac{(a+b)}{c}$

Answer.....

(b) $\sqrt{b^2 - 4ac}$

Answer.....

7. What is the largest whole number that is a factor of both 164 and 160?

Answer.....

8. If I score 38 out of 75 in a Mathematics test, what percentage did I score? Give your answer correct to one decimal place.

Answer.....

9. Find the mean (average) of the following numbers, giving your answer to 1 decimal place.

4.9 5.1 5.3 7.7 8.5 10.5 8.2

Answer.....

10. Find the missing numbers

$$\dots\dots\dots \times 10000000 = 51000$$

$$\dots\dots\dots \div \frac{1}{3} = 30$$

11. I walk along a road at a speed of 3.4 km per hour for two hours and then along another road at 2.8 km per hour for 20 minutes. Calculate how far have I walked in total, giving your answer to the nearest metre.

Answer.....

12. Solve the following equations for x , giving your answers to 3 significant figures

(a) $3x + 2 = 18$

Answer.....

(b) $5x - 2(x + 2) = 13$

Answer.....