

2007/3rd A

Your name:

OUNDLE SCHOOL

**Examination for Entrance to the Third Form
MATHEMATICS**

**Section A
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 show how you are getting your answer.

You are NOT allowed to use a calculator for this Section.

NO CALCULATORS

1. Work out $31.2 + 94 - 9.6$.

Answer

2. Work out 127×2.2

Answer

3. Divide 513 by 9

Answer

4. Work out $\frac{5}{6} - \frac{3}{10}$

Answer

5. Yesterday the temperature outside was -9°C . Today it is 11°C .
By how much has the temperature increased?

Answer

6. If a train leaves London at 7.47 am and takes $3\frac{1}{2}$ hours to get to Leeds, when would it arrive?

Answer

If the journey is a total of 420 km, how far on average would it travel every hour?

Answer

7. Fill in the missing numbers:

$$272 \times \dots\dots\dots = 0.272$$

$$100 \div \dots\dots\dots = 500$$

8. A car was bought for £12,000. If its value after one year increases by 15%, what is it worth then?

Answer

9. Continue the patterns, giving the next two numbers each time:

a) 7, 12, 17, 22,,

b) 3, 6, 12, 24,,

c) 55, 48, 41, 34,,

10. Which whole number is closest to a square root of 61 ?

Answer

11. Remove the brackets and simplify:

i) $-4(4x - 7)$

i) Answer

ii) $9(2x - 3) - 2(4x - 6)$

ii) Answer

12. i) Simplify the following expressions,

a) $4x + 5xy - 2x - 6yx$

Answer

b) $2x^2 - 3xy + 5x - 3x^2 - 4yx$

Answer

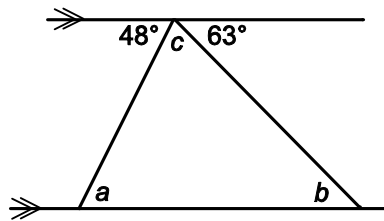
ii) If a closed cardboard box has length x cm, width y cm, and height z cm, find an expression in terms of x , y and z for the exterior surface area of the box.

Answer

13. It takes a photocopier 16 seconds to produce 12 copies. How long does it take to produce 15 copies?

Answer

14. Find a , b and c , giving reasons for your answers.

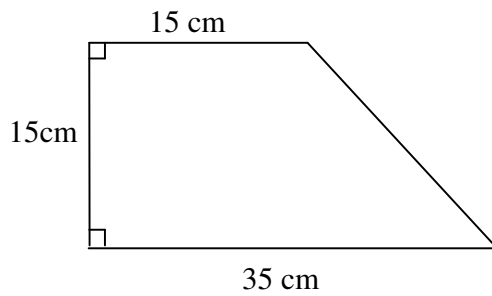


$a = \dots\dots\dots$ Reason

$b = \dots\dots\dots$ Reason

$c = \dots\dots\dots$ Reason

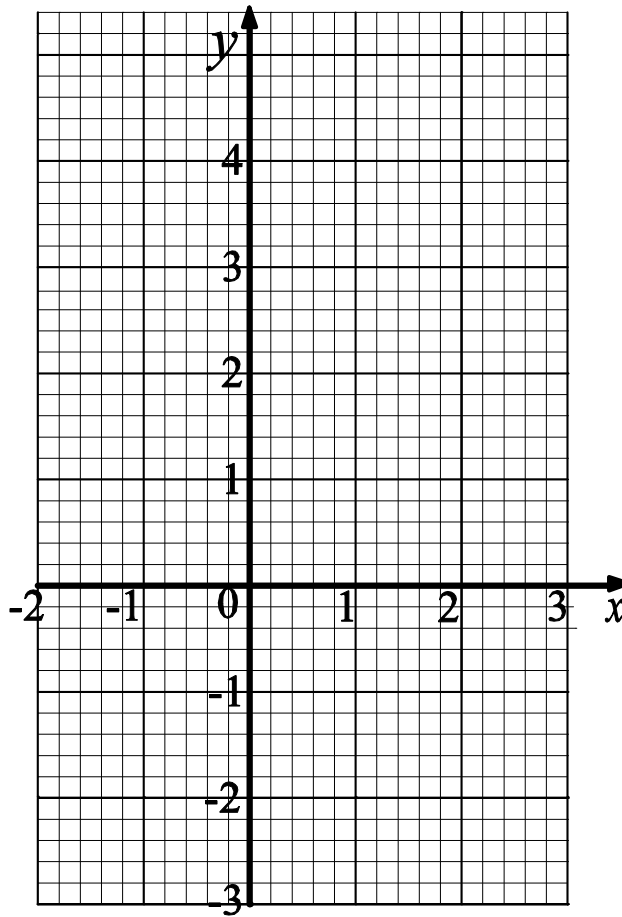
15. Find the area of the given shape (not drawn to scale).



Answer

16. Using the table, plot the graph of $y = 2x - 1$

x	-2	-1	0	1	2	3
y						



END OF SECTION A

2007/3rd B

Your name:

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**Examination for Entrance to the Third 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 show how you are getting your answer. CALCULATORS SHOULD BE USED FOR THIS SECTION.

1. Use your calculator to work out $\frac{7.45^2}{2.76} - 1.27$

Answer

2. Find $\frac{4}{9}$ of 180 kg to the nearest kg.

Answer

3. If 370 paper clips together weigh 96 grams, what is the weight in grams of a single paper clip?

Answer

4. Express $\frac{3^7 \times 3^6}{3^3}$ as a single power of 3.

Answer

5. i) a) Find the mean (average) of the numbers 27, 83, 45, 62, 71, 62, 34

Answer

b) What is the mode for this set of numbers?

Answer

c) What is the median value for this set of numbers?

d)

Answer

ii) The mean of eight numbers is 6. If two more numbers, each of value x , are included, the mean is 5. What is the value of x ?

Answer

6. If Jessica got 65 out of 85 on a test, work out what this is as a percentage to the nearest whole number.

Answer

7. A tank has a rectangular base with dimensions 2.2 m by 1.5 m. If its sides are vertical and it contains 8.25 m^3 of water, find the depth of water in the tank.

Answer

8. Work out how many numbers between 1 and 200 are exactly divisible by both 7 and 3.

Answer

9. Petrol in Germany costs 1.43 DM per litre. If a traveller spent 85.80 DM on petrol, how many litres did he buy?

Answer

10. a) What is the probability that a six sided die will turn up a 5?

Answer

- b) A letter is selected at random from the word 'mathematics'. What is the probability that it is

i) an m

i) Answer

ii) a vowel?

ii) Answer

11. Solve for x:

i) $8x + 13 = 69$

i) Answer

ii) $2(x+7) = 6$

ii) Answer

iii) $5x + 15 = 3x - 20$

iii) Answer

12. If $a = 4$ and $b = -7$, find the value of

i) $7a - 5b$

i) Answer

ii) $(3b - a)^2$

ii) Answer

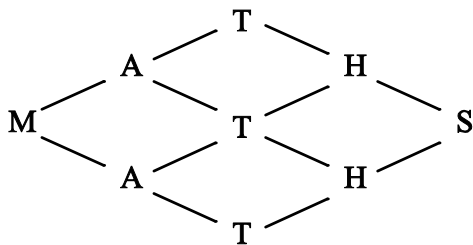
13. The cost for an adult and child to go to a cinema is £8.20. If the adult takes five children the cost is £19.40. Find the individual costs for a single child and a single adult.
[Hint: think what the difference between these is and what that pays for.]

Child

Adult

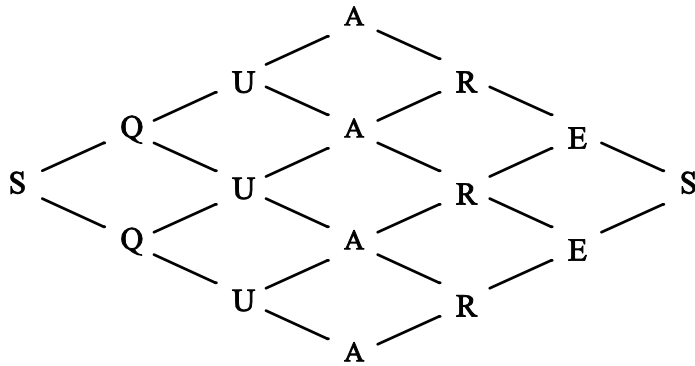
14. On these diagrams, the start position is the letter on the left, and the finish letter on the right. Moves must be from letter to letter, moving along the lines only. Following those rules, how many different routes can you find which spell out the words

a) **MATHS**



Answer

b) SQUARES



Answer

END OF EXAMINATION