Colfe's School

13+ Examination

Mathematics sample paper

Instructions

- In this exam you should attempt all questions
- Read each question carefully before answering it.
- Remember to show your method for each question.
- The number of marks for each question is given in brackets.
- You have 1 hour to complete this paper.
- Calculators are not allowed.
- Good luck!

1) Work out 207 × 314

.....

(2)

2) Find 15% of 280

.....

(2)

3) Work out 56,000 ÷ 100

.....

(2)

4) Work out 0.3^2

.....

(2)

8

5) Work out

$$2\frac{1}{3} - \frac{5}{6}$$

Give you answer as a mixed number in its simplest form.

.....

(3)

6) Work out

$$2\frac{1}{2} \times 3\frac{1}{4}$$

Give you answer as a mixed number in its simplest form.

.....

(3)

7) Work out the value of $42 - 2t$ when $t = 25$

.....

(2)

8) Work out the value of $-3 \times 7 + 20$

.....

(2)

Turn over for more questions.

9) A bag of marbles are shared between Bill and Ben in the ratio 3:5.
Ben gets 60 marbles.
How many marbles does Bill get?

……..

(3)

10) Write down the next two numbers in each sequence

a) 105, 94, 83, _____ , _____

b) 1, 4, 9, 16, _____, _____

(2)

11) A t-shirt that costs £72 is reduced in a sale. If it is reduced by 20% then how much is the t-shirt reduced by?

£……..

(2)

12) Solve each of these equations

a) $2x = 25$

$x =$.....

b) $5y + 3 = 38$

$y =$ .....

c) $6g - 11 = 4g + 4$

$g =$.....

d) $7(h - 3) = 56$

$h =$.....

e) $60 - 3x = 150$

$x =$.....

(10)

10

13) The nth term of a sequence is $6n - 1$

a) Find the first three terms of the sequence.

First term .....

Second term .....

Third term .....

b) Which term in the sequence is the first to be greater than 100?

.....

(5)

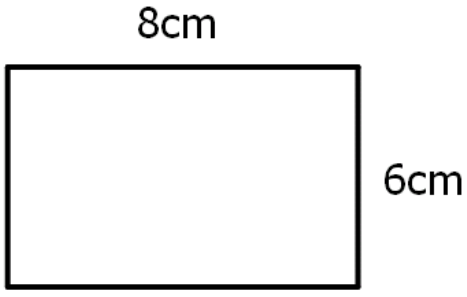
14)

a) This rectangle has a perimeter of 14cm. Its width is 2cm. Find its length.



.....cm

b) Find the length of a diagonal of this rectangle.

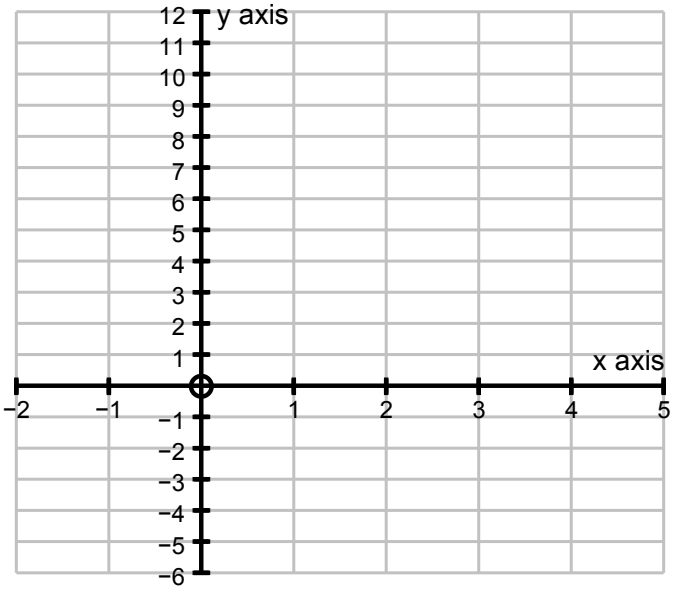


.....cm

(4)

15)

a) Plot the line with equation $y = 2x - 1$ on the coordinate grid.



b) Write down the equation of the line that is parallel to $y = 2x - 1$ and passes through the point (0,3).

.....

(4)

16) This formula calculates the distance, d, that a bicycle travels when it is ridden for t minutes with an acceleration of a .

$$d = at^2$$

a) Find the distance when $a = 5$ and $t = 3$

.....

b) Find the acceleration when $d = 20$ and $t = 2$

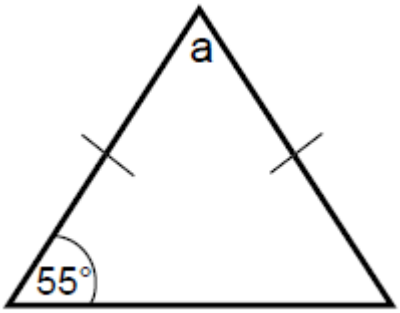
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(4)

Keep going! Turn over for more questions.

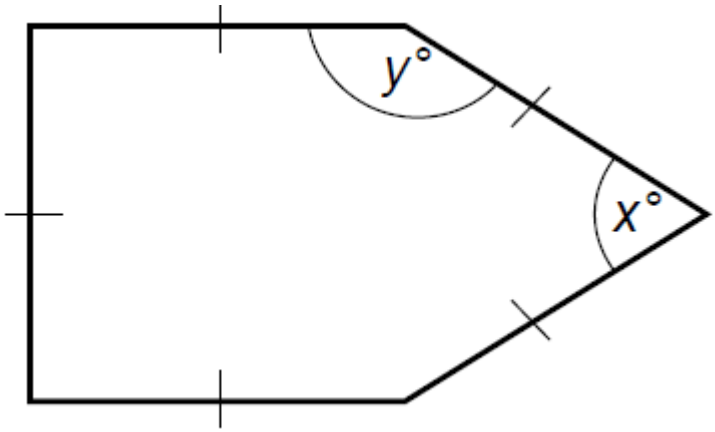
17) Find the angles marked with a letter.

a)



a=.....

b) This diagram shows a five sided shape. All the sides are equal in length.



x= .....

y=.....

(3)

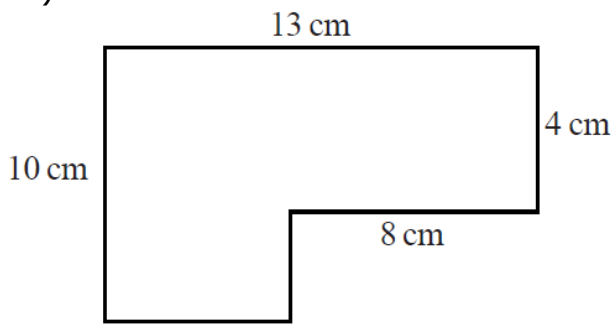
18) I think of a number. When I double this number I get the same answer as when I subtract 4 from this number and then multiply it by 3. What number am I thinking of?

.....

(4)

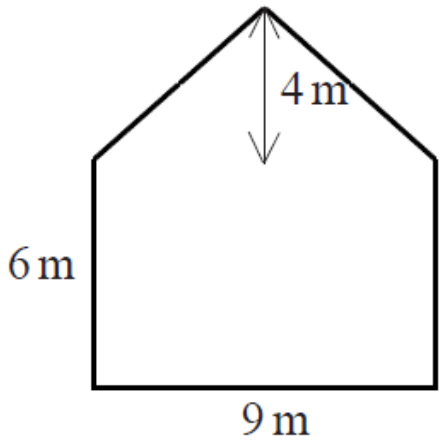
19) Find the area of each shape. Give units with your answers.

a)



.....cm^2

b)



.....cm^2

(7)

20) Two friends, Anna and Tom, go to the supermarket.
Anna buys two packets of crisps and one drink and pays £2.40 .
Tom buys three packets of crisps and one drink and pay £3.05.
Find the price of one drink.

.....

(4)

Turn over for the last two questions!

21) Jordan drops a £1 coin, £2 coin and a 50 pence coin from his pocket. He looks down and notices that all three coins have landed head up. What is the probability of this happening? (You may assume that the coins are unbiased.)

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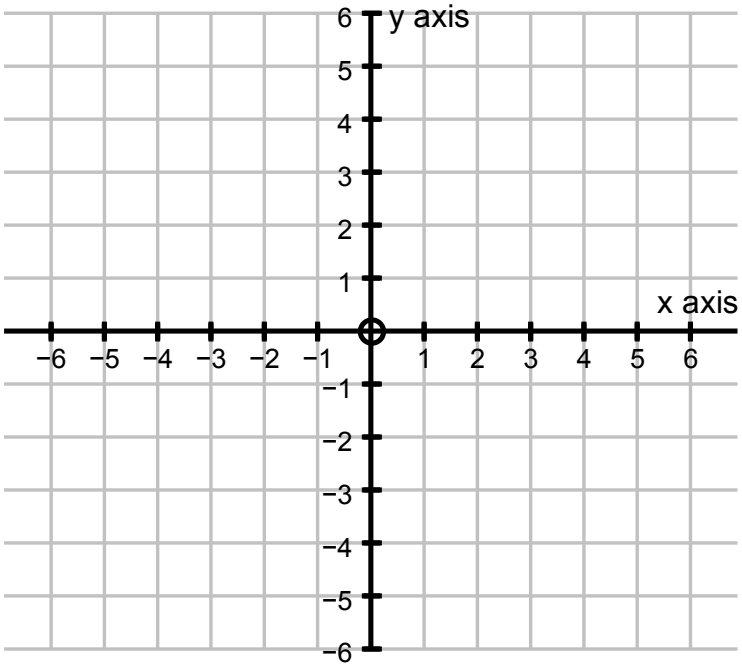
(3)

22) Complete this question on the grid below.

a) Plot the points (3, 2) , (-1, 2) and (-1, 4). Join them up to make a triangle and label this triangle A.

b) Reflect triangle A in the x axis and label it B.

c) Translate triangle B 3 units in the positive x direction and 2 units in the positive y direction. Label the new triangle C.



(5)

END OF EXAM

Well done!