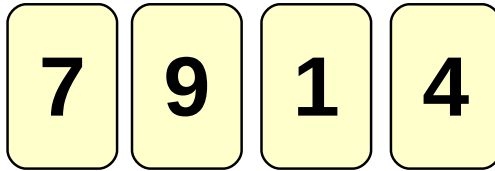


What fraction of this shape is shaded?
Give your answer in its simplest form.

1

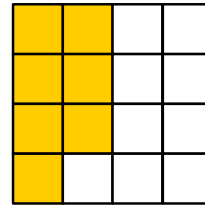
ANS _____



What is the smallest number you can make from the digits on the cards?

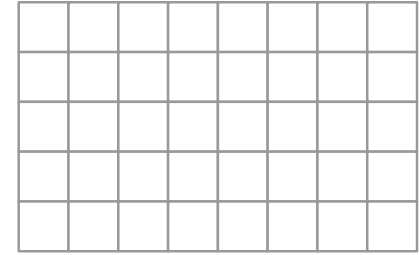
2

ANS _____



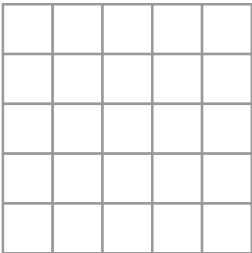
How many more squares do you have to shade so three-quarters of the square is shaded?

3



Draw a rectangle on the grid that has a perimeter of 14 cm and an area of 12 cm²

4



Shade in 60% of this grid

5

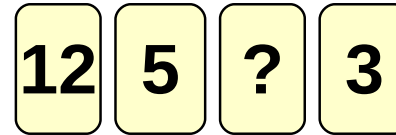
Solve these equations

$$3x - 7 = 17$$

$$\frac{x}{20} = 5$$

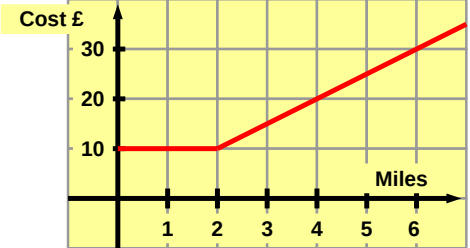
$$2x + 10 = 2$$

6



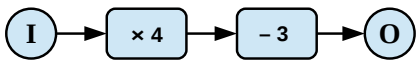
The mean of these four numbers is 7
Find the missing value

7



How far can you get for £25?

8

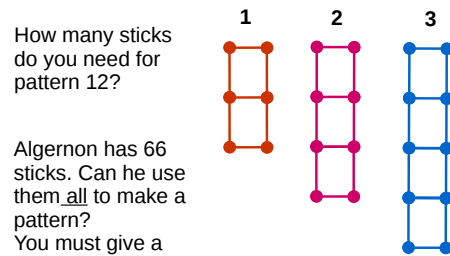


a) Input is 5, what is the output?

b) Output is 41, what is input?

*c) The output was twice the input.
What was the input?

9



How many sticks do you need for pattern 12?

Algernon has 66 sticks. Can he use them all to make a pattern?
You must give a reason/calculation

10

Beth is x years old _____ 11

Algernon is four years older than Beth _____

Hannah is double the age of Beth. _____

The total age of the three people is 68 _____

How old is Beth?

Simplify these expressions

$$f + f + f + f - f$$

$$p \times p \times p \times p$$

$$5(2x - 5) - 2(2x - 1)$$

12

Algernon says that...

$$\text{Half way between } \frac{2}{3} \text{ and } \frac{4}{5} \text{ is } \frac{3}{4}$$

Is he right?
Give a calculation

13

Here is a number sequence...

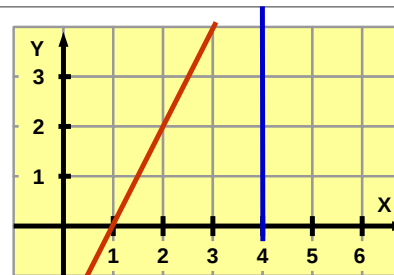


a) Write down the next two terms...

b) What is the n^{th} term of the sequence?

c) Explain why 207 can't be in the sequence

14



What is the gradient of the red line?
What is the equation of the blue line?

15

Factorise...

$$12x - 9$$

Factorise fully...

$$4x^2 + 10x$$

16

← £120 →

← a → ← b →

NB: Within a given diagram, all the cards, bars, cups, gaps and slices have same value

1

Whole pizza £3.50
How much for 2 slices?

2

← a →

Gladys

Enid

← £350 → ← b →

3

350g 650g

How much does the jug weigh?

4

← a →

← b → ← £90 →

5

← £630 →

← a → ← b →

6

← 450ml →

← ? →

7

← £42 →

← ? →

£42 was the sale price.
What was the % reduction?

8

← ? →

← £360 →

9

Bill and Ben split the profits of their barrow according to the number of shares they own.

Bill

Ben

Last week, Bill took home £400 more than Ben. Work out the total profit of the barrow.

10

← b →

← a → ← £40 →

11

c b 20 a 24

Find values of a, b and c

12

← £480 →

← Lucy → ← Asif →

How much more is Asif's share than Lucy's share?

13

5 slices cost £4.50.
How much for 2 2/3 pizzas?

14

← 100% →

VAT

← £450 →

How much is 100% of the amount?

15

Y 19.6 X 24.8

16

Recap: Number non-calculator quick questions all non-calculator

Fractions have a top and a bottom

Factors of 6 are 1, 2, 3, 6 because you can divide 6 by those numbers without a remainder.

Multiples of 6 are 6, 12, 18, 24

To write one number as a percentage of another, make a fraction and multiply by 100.

To find the value of a percentage, find 50% by halving, find 10% by dividing by 10 and find 5% by dividing the value of 10% by 2.

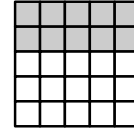
Stand back – decide if your answer makes sense!

1

Find 15% of £600

2

ANS _____



What fraction of this shape is shaded grey?

Give your answer as a fraction in its simplest form.

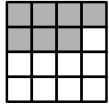
3

ANS _____

Write 0.6 as a fraction in its simplest form

4

ANS _____



How many more squares does Algernon have to shade so that three quarters of the shape is shaded?

5

ANS _____

Find 65% of £40

6

ANS _____

Evadne wins a prize of £450

She gives half of the prize to her favourite charity

She keeps one third of the prize for a rainy day

Evadne spends the remainder on cup cakes and coffee for friends

How much does she spend on cup cakes and coffee?

7

ANS _____

Write the prime factors of 120 in index form

8

ANS _____

Write $\frac{7^3 \times 7^9}{7^7}$ as a power of 7

9

ANS _____

Lighthouse A flashes once every 3 minutes

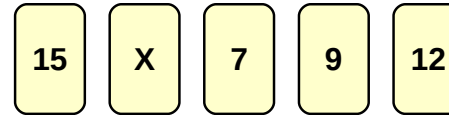
Lighthouse B flashes once every 5 minutes

Algernon notices that they flash together at 2107 one evening

When will lighthouse A and B flash together again?

10

ANS _____



The mean value of the numbers on these 5 cards is 10

Work out the value that must be written on card X

11

ANS _____

Increase £45 by 20%

12

ANS _____

Write 12 as a percentage of 60

13

ANS _____

Cuthbert sells prints of paintings and he prices his prints by size.

He sells 15 large prints at £60 each

He sells 35 medium sized prints at £25 each

He sells 40 postcard sized prints at £10 each

Work out the total value of Cuthbert's sales

14

ANS _____

Special Offer

5 packs for the price of 4

What is the percentage discount?

Hint: invent a price for each pack

15

ANS _____

Find $\frac{2}{3}$ of 51

16

ANS _____

Recap: 15 questions about triangles

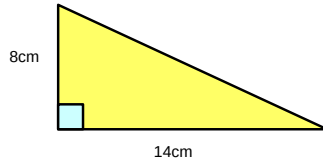
Some of these questions involve Pythagoras' result, put a P on those questions.

Look for right-angled triangles where the question is about the length of a side.

An isosceles triangle can be cut up into two congruent triangles each with a right angle – that is an old trick.

There might be the odd question about the perimeter of a trapezium popping up – a square ended trapezium can be treated as the combination of a right-angled triangle and a rectangle.

Diagrams not to scale. Watch the units!

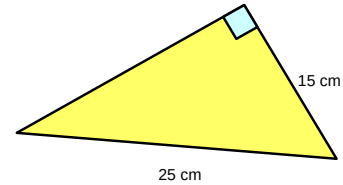


Work out the length of the long side of this triangle.

Give your answer to 1 decimal place and remember to state the units.

2

ANS _____

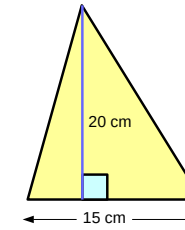


Work out the length of the missing side of this triangle

Hint: Can you do this question without a calculator?

3

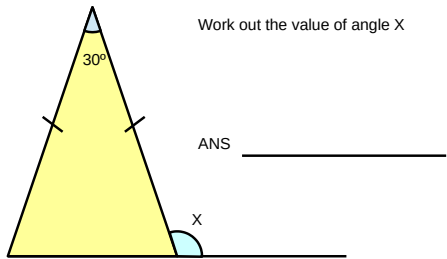
ANS _____



Work out the area of this triangle

4

ANS _____

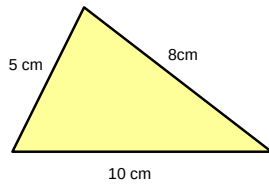


Work out the value of angle X

ANS _____

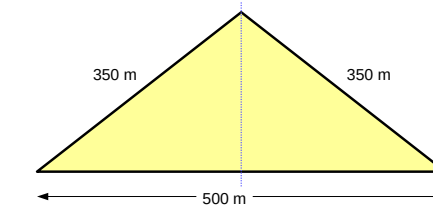
Can you list the 3 angle facts you used to work out the answer?

5



Algeron claims that this triangle has a right angle. Is he right? How do you know?

6



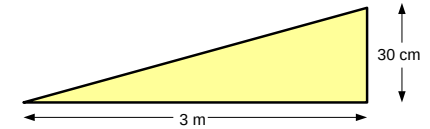
Calculate the area of the triangular field sketched above

Hint: the blue line divides the field into two right angled triangles.

7

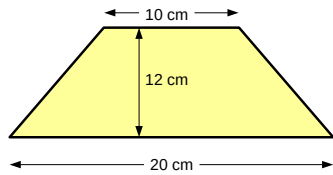
ANS _____

Hermione needs to build a ramp for wheel chair users to get up a step. The step is 30 cm high and the ramp has to occupy 3m of horizontal space as shown in the sketch above. How long does the ramp have to be? Give your answer to the nearest whole centimetre.



8

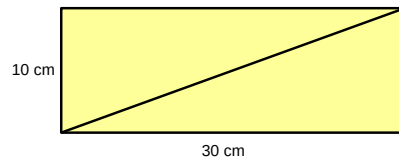
ANS _____



Use the formula on a Foundation past exam paper to calculate the area of this trapezium

9

ANS _____

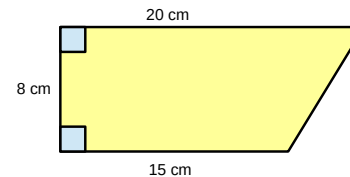


Calculate the length of the diagonal of this rectangle.

10

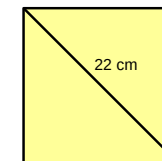
ANS _____

Calculate the perimeter of the trapezium shown below...



11

ANS _____



The diagonal of this square is 22 cm long.

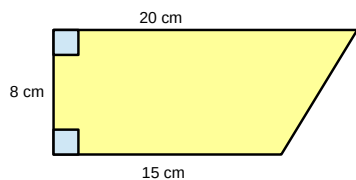
Calculate the length of the side of the square.

Give your answer to 1 decimal place

12

ANS _____

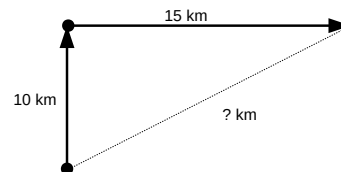
Calculate the area of the trapezium shown below...



13

ANS _____

Algeron is in the Arctic exploring the scenery.



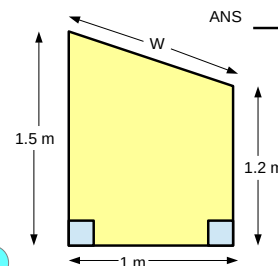
He walks 10 km due North and then turns due East and walks a further 15 km. Calculate his distance from base camp as the penguin flies... Check your answer by drawing a scale diagram...

14

ANS _____

Evadne's coal shed has a cross-section shown below.

What is the width (W) of the roof of her shed?

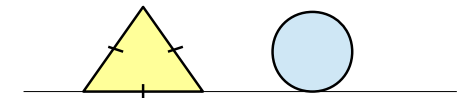


15

ANS _____

Hermione is designing a public art work consisting of metal shapes on a fence around a playground.

The equilateral triangle and the circle have the same perimeter, and both rest on the level ground as shown in the sketch.



The diameter of the circle is 70cm. Hermione says that the triangle will be taller than the circle. Algeron says that the circle will be taller than the triangle. Who is right?

16

ANS _____