

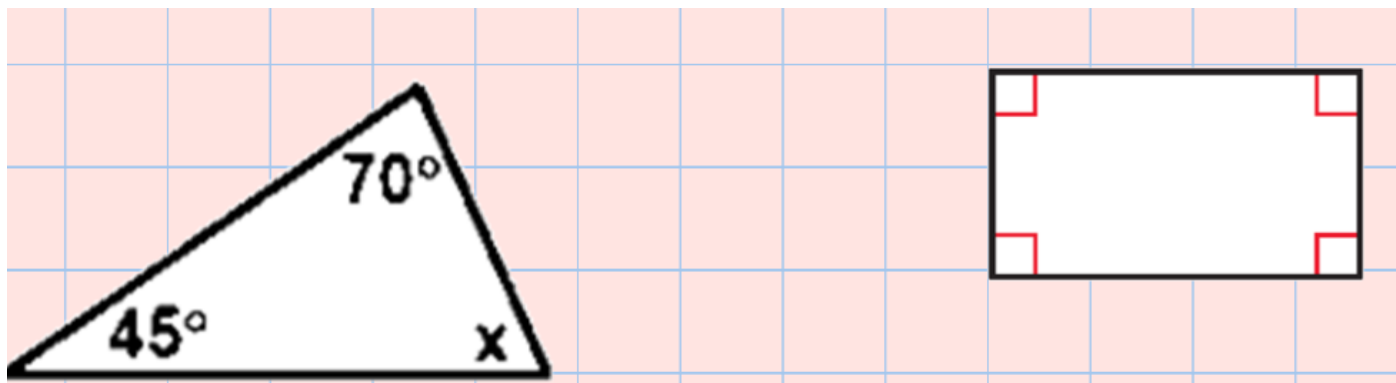
WC 29.06.2020

Missing Angles, Algebra and Arithmetic

Monday

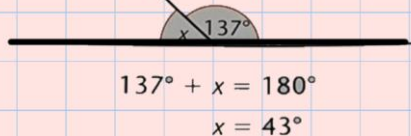
LO: Missing angles

Review: All the angles in a triangle add up to 180° and all the angles in a quadrilateral add up to 360° . What strategies can you use to solve for the missing angles?

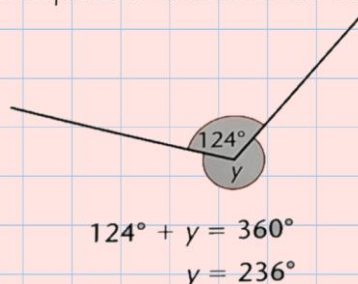


Reminder:

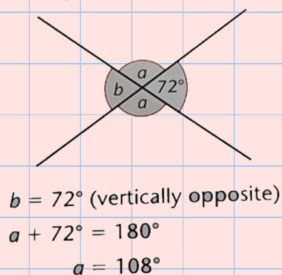
Angles on a straight line: The sum of the angles on a straight line is 180° . How do I solve for angle x ?



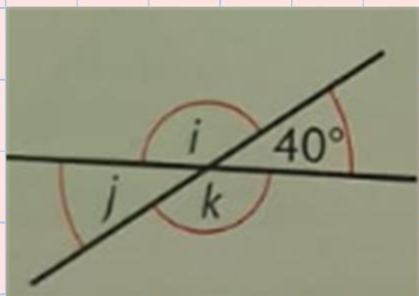
Angles at a point: A whole turn is 360° . What is angle y ?



Vertically opposite angles: Where two straight lines cross each other, opposite angles are equal. So what are angles A and B?



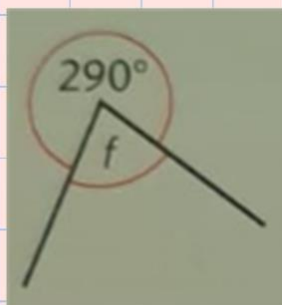
You try:



Angle J:

Angle I:

Angle K:

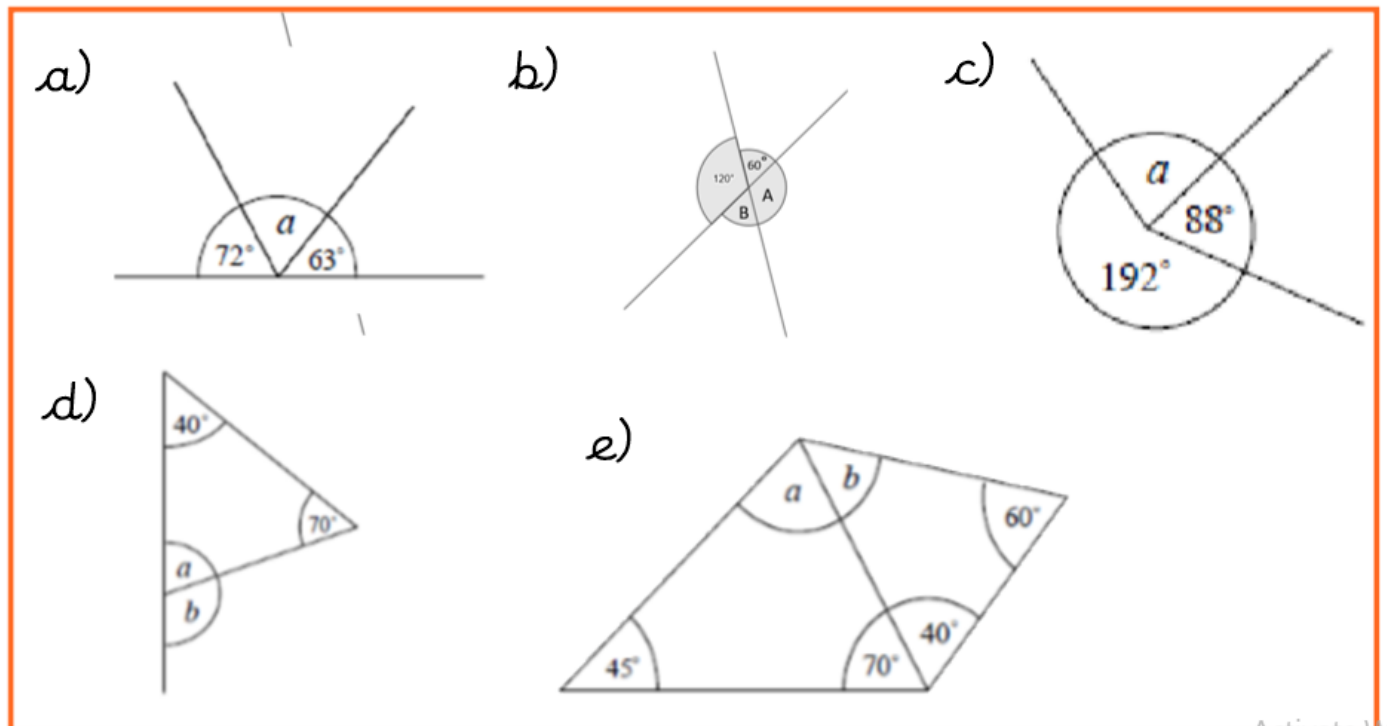
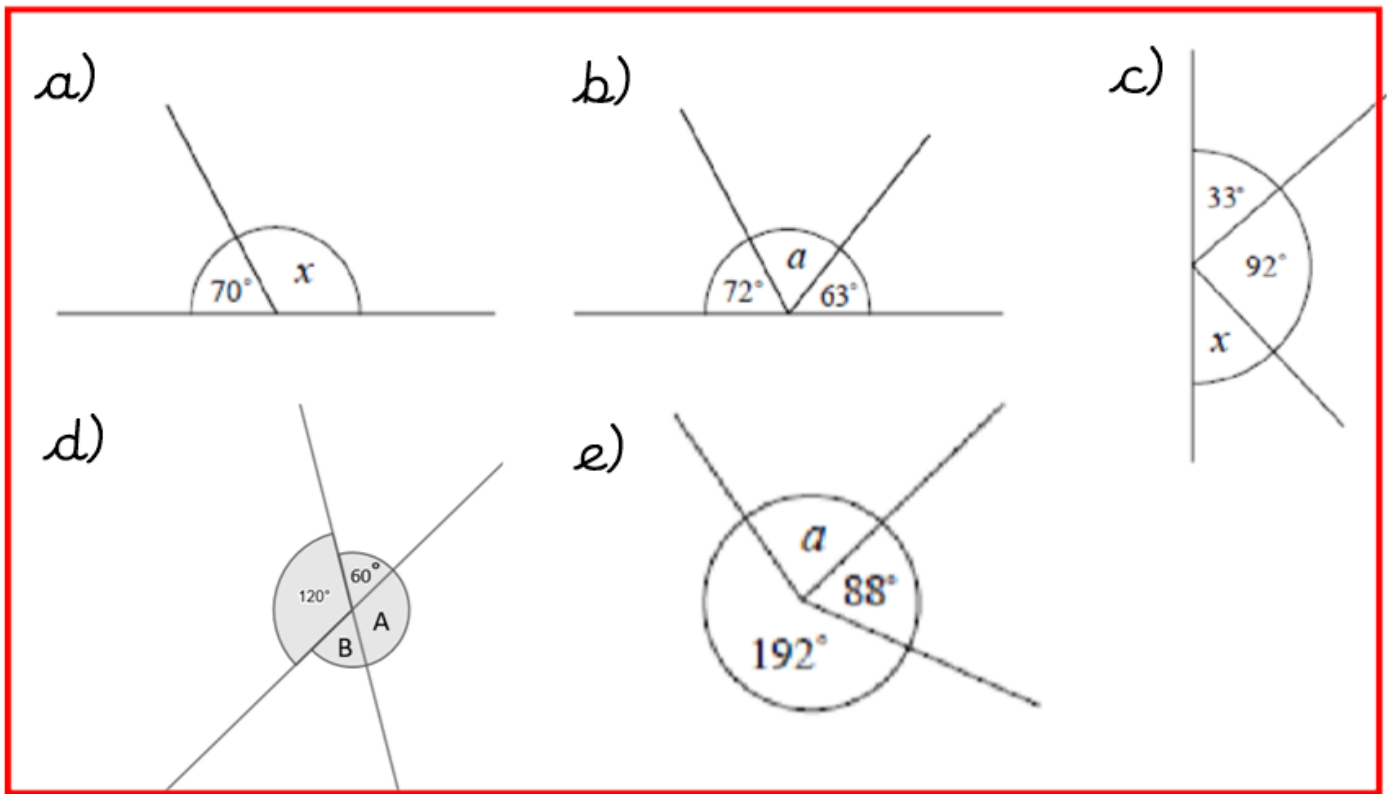


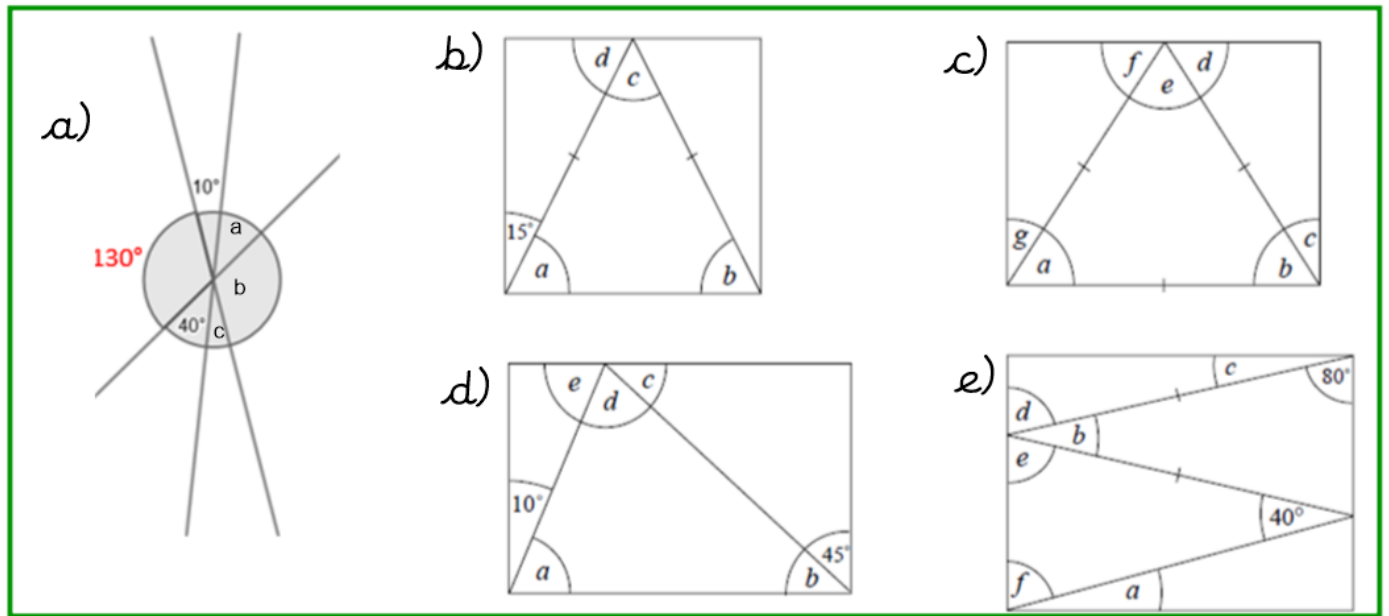
Angle F:

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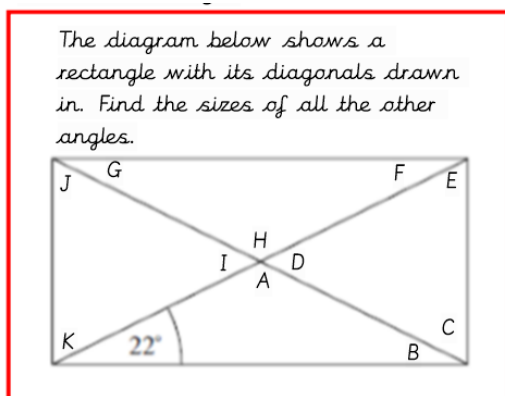
Missing Angles, Algebra and Arithmetic

Which set of questions will you solve?

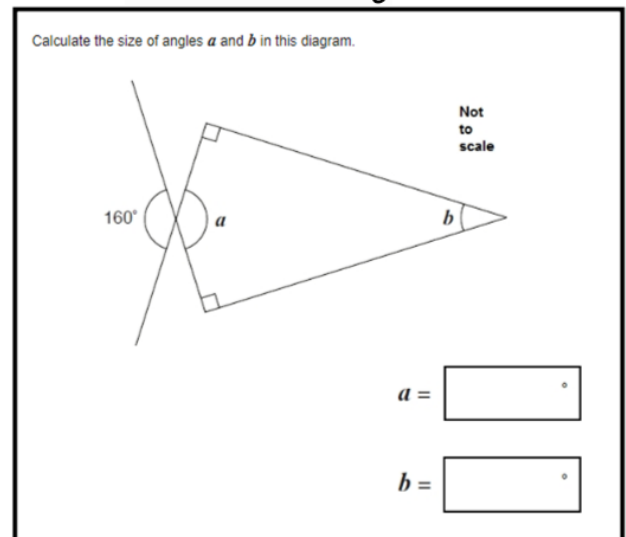




Challenge:



Reasoning:



Purple Mash: Angles and Types of Angles

Rock Stars: You should be able to recall all of your timestables.

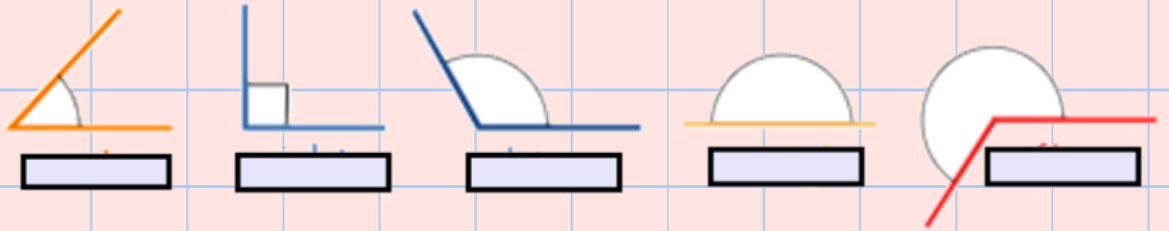
LO: Missing angles in triangles and quadrilateralsArithmetic Recap

a) $43 \times 10 =$

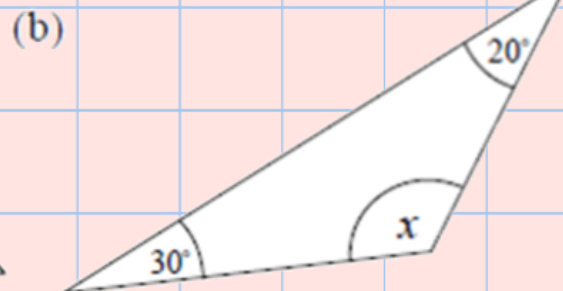
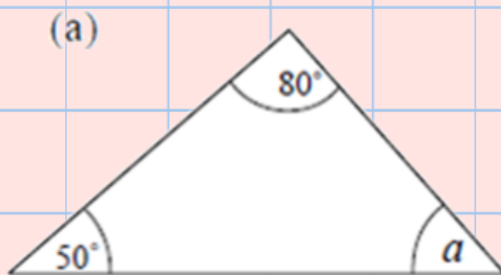
a) $39 \div 10 =$

b) $789 \times 100 =$

b) $410 \div 100 =$

Angles Recap: What kind of angles are shown below? Describe their properties.

What is the total sum of angles in a triangle? What methods can I use to solve for angle a and angle b?

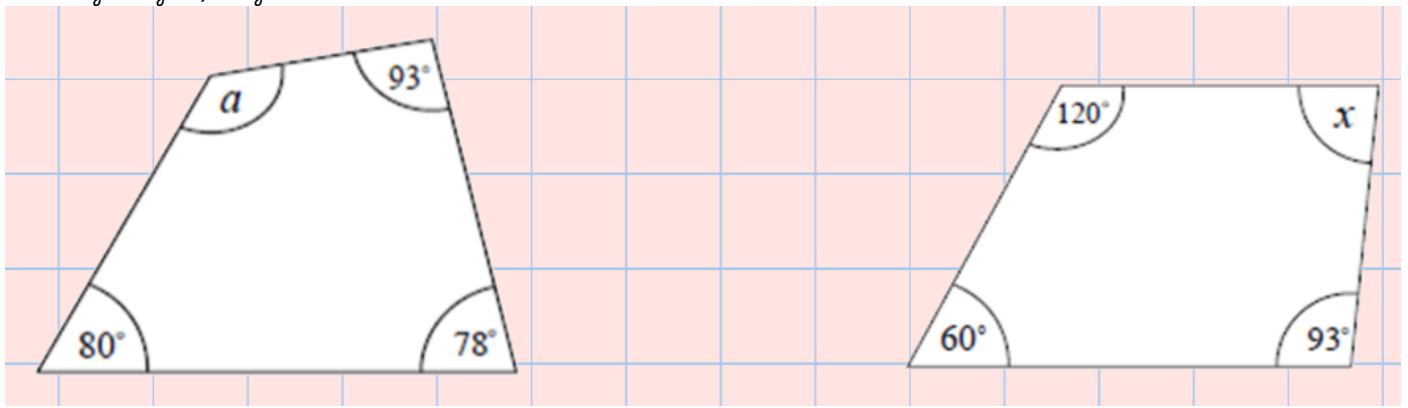


The total sum of angles in a triangle amount to 180° .

a) $80^\circ + 50^\circ + \underline{\hspace{1cm}} = 180^\circ$

b) $30^\circ + 20^\circ + \underline{\hspace{1cm}} = 180^\circ$

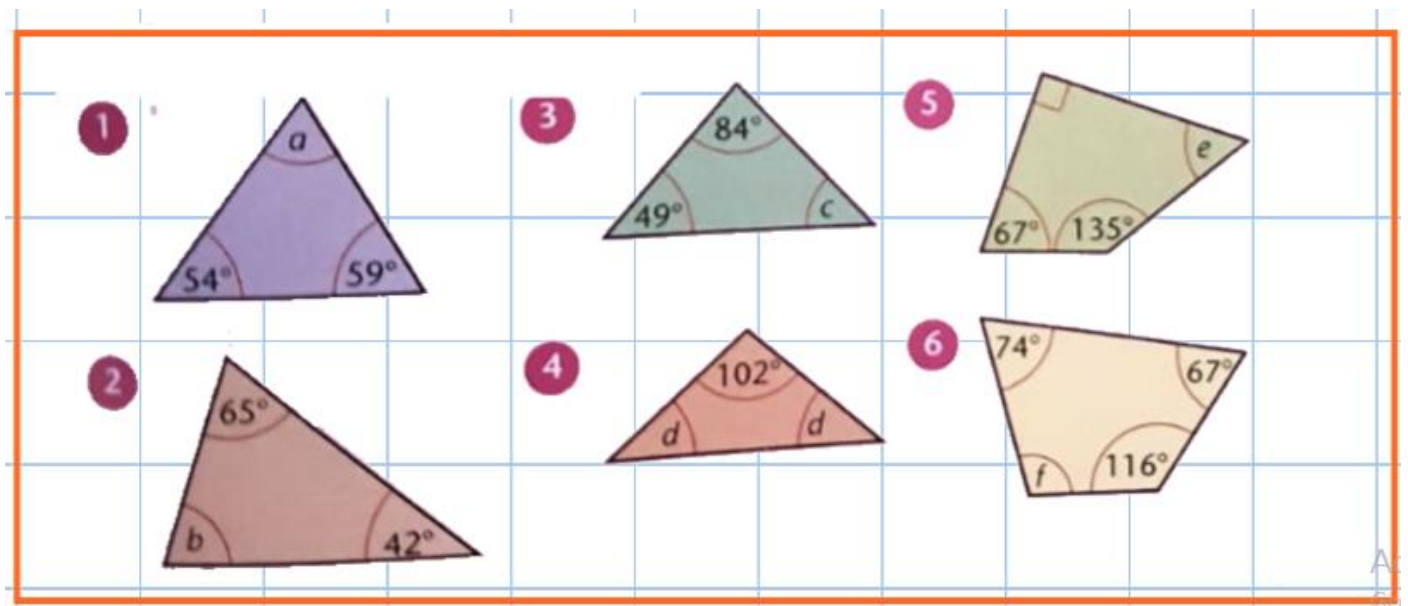
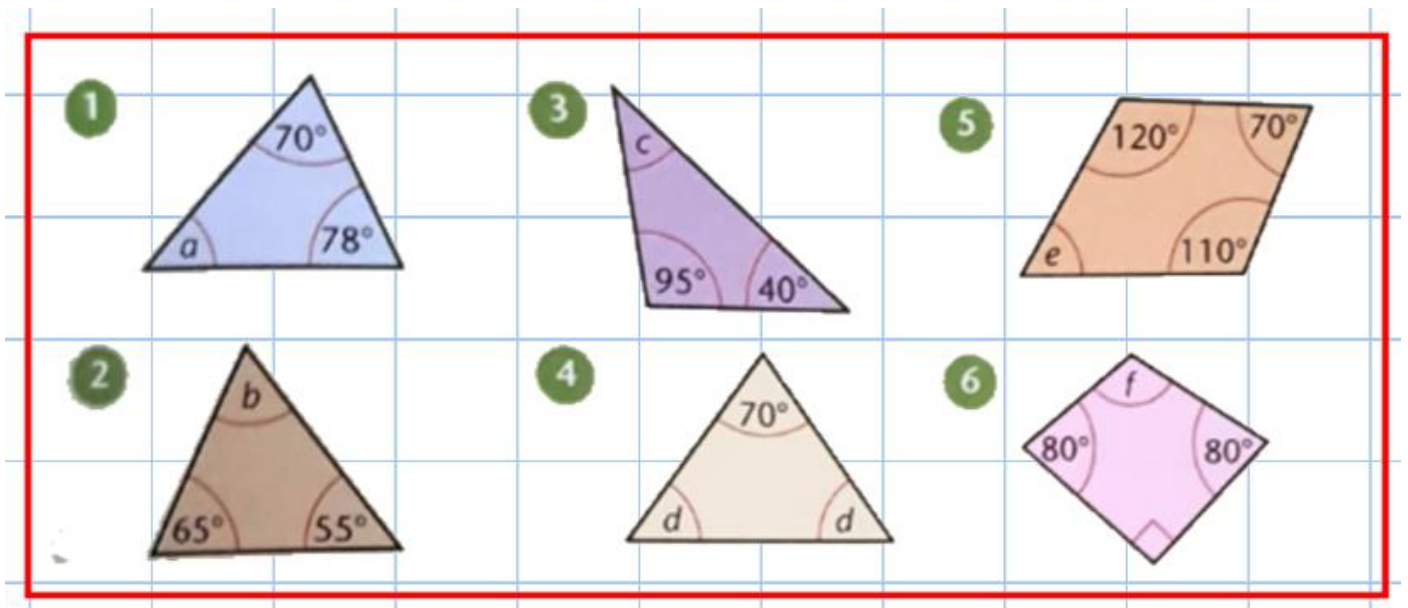
The total sum of angles in a quadrilateral amount to 360° .



a) $80 + 93 + 78 + \underline{\hspace{1cm}} = 360 \text{ degrees}$

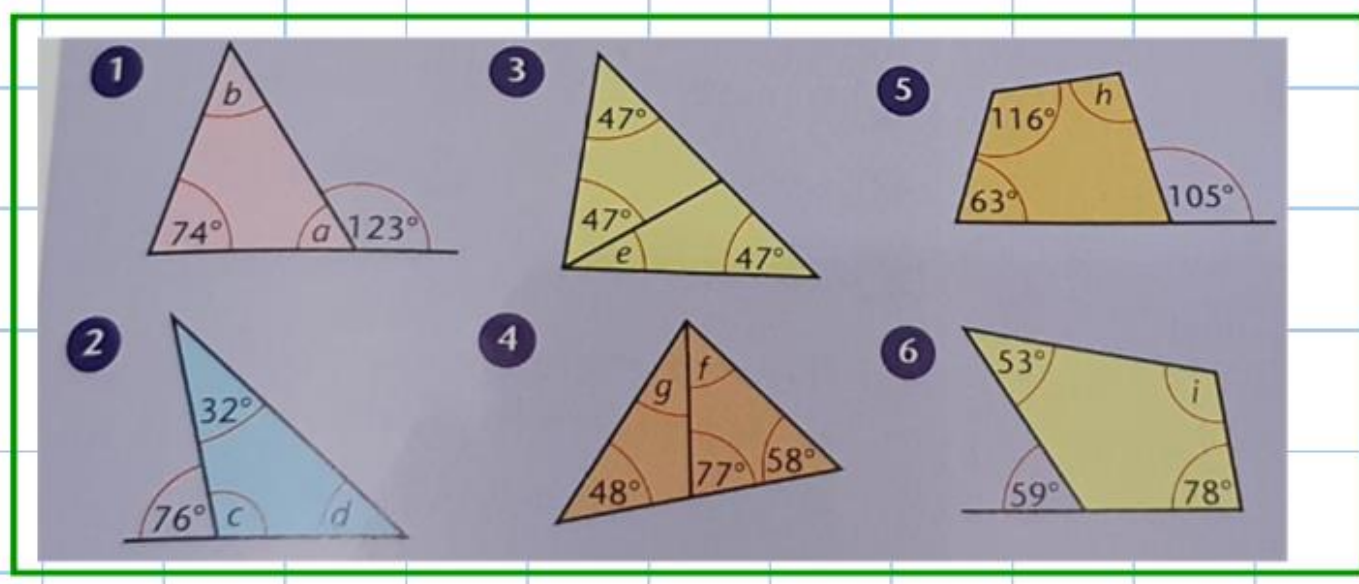
b) $120 + 60 + 93 + \underline{\hspace{1cm}} = 360 \text{ degrees}$

Which set of questions will you solve?



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Challenge

Here is a rectangle.

Not to scale

Calculate the size of angles a and b .

Do not measure the angles.

$a =$ $^\circ$

$b =$ $^\circ$

Reasoning

Here is a regular octagon.

Calculate the sizes of angles a and b

$a =$

$b =$

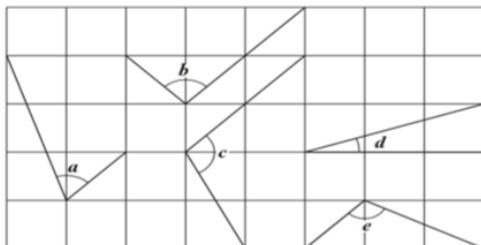
Purple Mash: Angles in triangles

Rockstars:

LO: Shape and Angle Reasoning

- What are the differences between acute, obtuse and right angles?

Here are five angles marked on a grid of squares.



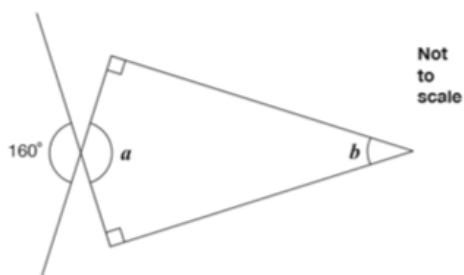
Write the letters of the angles that are obtuse.

Write the letters of the angles that are acute.

Act
507

- What kind of angles can you identify?
- What do we already know about missing angles?
- How many degrees are there in a quadrilateral?

Calculate the size of angles a and b in this diagram.



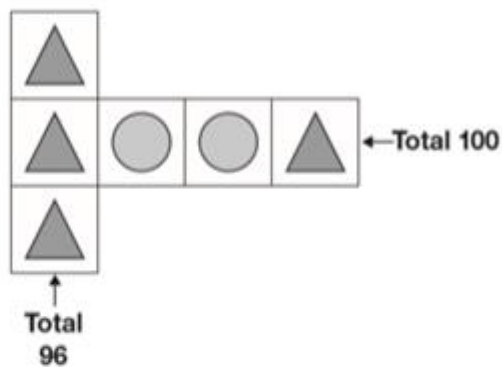
$$a = \boxed{}^\circ$$

$$b = \boxed{}^\circ$$

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Missing Angles, Algebra and Arithmetic

Each shape stands for a number.



Work out the value of each shape.

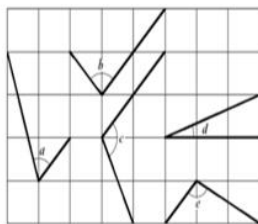
 = _____

 = _____

Which set of questions will you solve?

Red

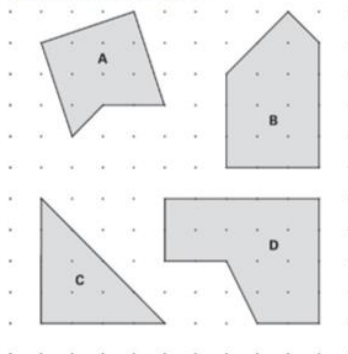
- 1) Here are five angles marked on a grid of squares.



Write the letters of the angles that are obtuse.

Write the letters of the angles that are acute.

- 2) They each have a different number of right angles.



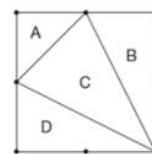
Write the letter for each shape in the correct order.

One has been done for you.

fewest right angles			most right angles
C			

- 3) This diagram shows a square with dots at the vertices and at the middle of each side.

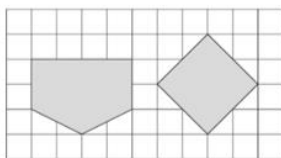
The square is divided into four triangles, A, B, C and D.



Write the letters of all the triangles that have a right angle.

Write the letters of all the triangles that have two equal sides.

- 4) Here are two shapes on a square grid.
For each shape, write how many right angles it has.



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Missing Angles, Algebra and Arithmetic

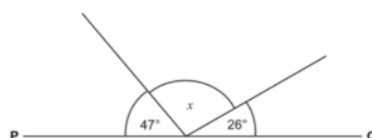
Orange

a) Layla completes one-and-a-half somersaults in a dive.



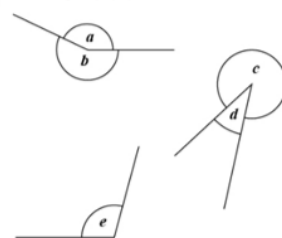
How many degrees does Layla turn through in her dive?

b) PQ is a straight line.



Calculate the size of angle x .

c) Look at angles a , b , c , d and e

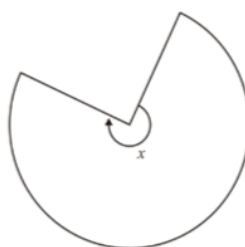


Write the angles in order of size, starting with the smallest.

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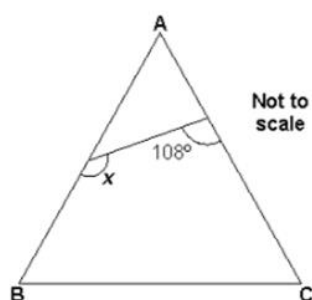
smallest

d) This shape is three-quarters of a circle.



Green

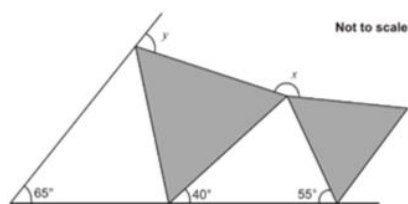
1) Triangle ABC is equilateral.



Calculate the size of angle x .

Do not use an angle measurer (protractor).

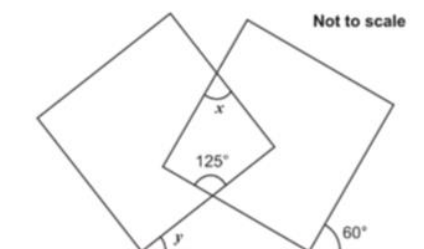
2) The diagram shows two shaded equilateral triangles.



Calculate the size of the angle x and angle y .

Do not use a protractor (angle measurer).

3) The diagram shows two overlapping squares and a straight line.



Calculate the value of angle x and the value of angle y .

Do not use a protractor (angle measurer).

Challenge

Anna has four different triangles.

Complete the table to show the size of the angles in each triangle.

Type of triangle	Angle 1	Angle 2	Angle 3
Isosceles	90°		
Right-angled	80°		
Isosceles	70°		
Isosceles	70°		

Reasoning

Two of the angles in a triangle are 70° and 40°

Jack says,

The triangle is equilateral.



Explain why Jack is **not** correct.

Purple Mash: Estimate Angles

Rockstars

LO: AlgebraArithmetic

$$23 + \underline{\quad} = 50$$

$$\underline{\quad} + 14 = 100$$

$$3 \times 3 + \underline{\quad} = 23$$

$$4 + 2^{\square} = 12$$

So, what is algebra again?

Algebra uses symbols (usually letters such as x or y) to replace numbers. We call this symbol the unknown or the variable and it is our job to find out the value of this symbol. In an equation, both sides must always be equal.

For example: $x - 2 = 4$

To solve this we need to work out the value of x . So we can see that x minus 2 is equal to 4 and we know that the value of x is going to be 2 bigger than 4. So in this example $x = 6$ which is the same as 4 plus 2.

$$\underline{6} - 2 = 4 \text{ inverse } 4 + 2 = \underline{6}$$

This side is equal to the other side $=$ This side is equal to the other side

$$3 \times \underline{\quad} + 5 = 11$$

$$3 \times 2 + 5 \\ 6 + 5 = 11$$

$$4 \times \underline{\quad} + 2 = 30$$

Remember, if there is a letter beside the number, you automatically multiply

$$4 \times 7 + 2 \\ 28 + 2 = 30$$

1) $3 \times \underline{\quad} = 24$

2) $\underline{\quad} - 30 = 26$

3) $0.48 + \underline{\quad} = 1$

4) Double this number and add 3 to give an answer of 11.

5) Multiply this number by 3 and subtract 6 to give 9.

1) $9 + 6x = 51$

2) $10 \times \underline{\quad} - 1.4 = 3.6$

3) $\underline{\quad} \div 2 + 11 = 26$

4) Multiply x by 5 and add 4 to give 19.

5) Divide x by 4 and add 10 to give 16.

1) $3x - 7 = x + 3$

2) $6x + 10 = 10x + 4$

3) $7x - 2 = 2x + 28$

4) Adding 3 to x gives the same answer as doubling it and subtracting 5.

5) Multiplying x by 10 and subtracting 6 gives the same answer as doubling x and adding 6.

Challenge:

Solve this equation.

$$7y + 12 = 5y + 40$$

Reasoning

Maria bakes cakes and sells them in bags.



She uses this formula to work out how much to charge for one bag of cakes.

$$\text{Cost} = \text{number of cakes} \times 20\text{p} + 15\text{p for the bag}$$

a) How much will a bag of 12 cakes cost?

b) Olivia buys a bag of cakes for €5.15

Use the formula to calculate how many cakes are in the bag.

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Missing Angles, Algebra and Arithmetic

Friday

LO: Arithmetic

Try to solve all of them ☺

1) $5.87 + 3.123 =$

2) $60 \div (30 - 24) =$

3) $2\frac{1}{2} - \frac{3}{4} =$

4) $56.38 + 24.7 =$ 81.08

5) $3,050,020 = 3,000,000 + \underline{\hspace{1cm}} + 20$

6) $0.5 \times 28 =$

1) 20% of 3,000 =

$0.9 \div 100 =$

2)

3) $1\frac{3}{7} - \frac{4}{7} =$

4) $\times \begin{array}{r} 836 \\ 27 \end{array}$

5) $\frac{5}{7} + \frac{3}{21} =$

6) $43 \overline{)645}$

1) $37 \overline{)888}$

2) 51% of 900 =

3) $\times \begin{array}{r} 3468 \\ 62 \end{array}$

4) $9^2 - 36 \div 9 =$

5) $4\frac{2}{3} - 1\frac{6}{7} =$

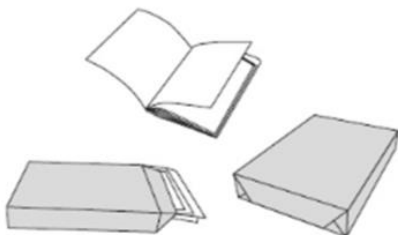
6) $37.8 - 14.671 =$

Challenge

$$\frac{1}{4} + \frac{1}{5} + \frac{1}{10} =$$

Reasoning

Adam is making booklets.



Each booklet must have 34 sheets of paper.

He has 2 packets of paper.

There are 500 sheets of paper in each packet.

How many complete booklets can Adam make from 2 packets of paper?

Purple Mash: Scaling Shapes

Rockstars