

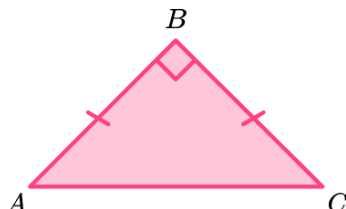
# Types of triangles - Worksheet

## Skill

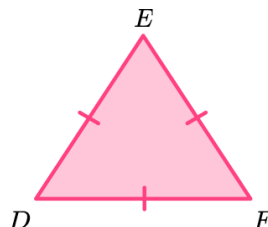
### Group A - Identifying triangles

Identify each triangle below as equilateral, isosceles or scalene.

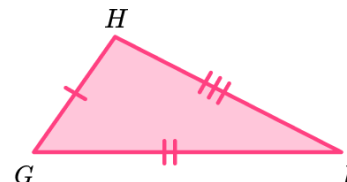
1)



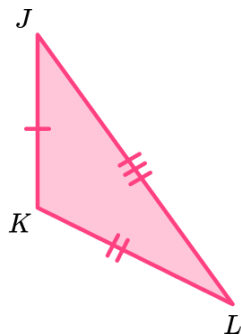
2)



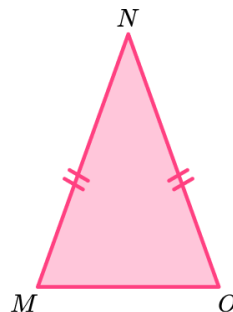
3)



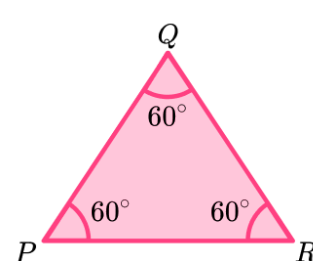
4)



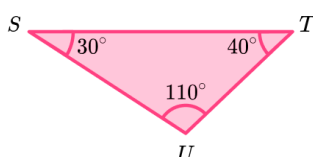
5)



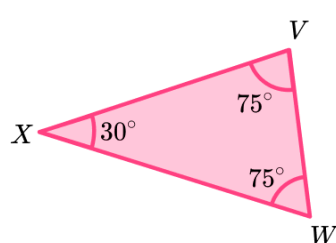
6)



7)

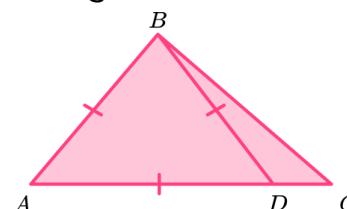


8)

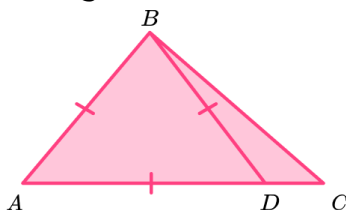
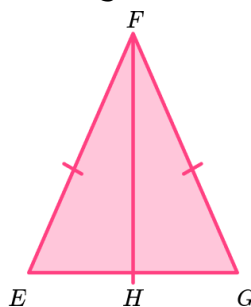
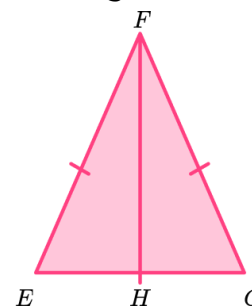


9)

Triangle ABD



10) Triangle BCD

11)  $H$  is the midpoint of  $EG$ . Triangle  $EFG$ 12)  $H$  is the midpoint of  $EG$ . Triangle  $HFG$ 

## Types of triangles - Worksheet

### Group B - Properties of triangles

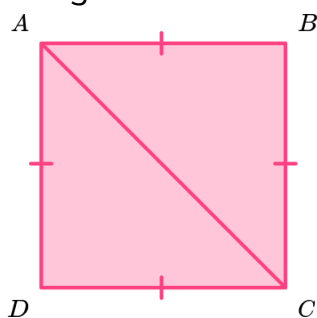
Identify each triangle below as equilateral, isosceles or scalene from each description.

- |                             |                          |                          |
|-----------------------------|--------------------------|--------------------------|
| 1) Three equal sides.       | 2) Two equal angles.     | 3) One line of symmetry. |
| 4) Three unequal sides.     | 5) Three equal angles.   | 6) Two equal sides.      |
| 7) Three lines of symmetry. | 8) Three unequal angles. | 9) No lines of symmetry. |

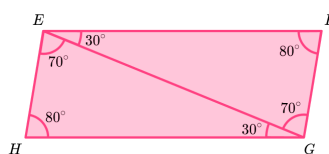
### Group C - Triangles within quadrilaterals

Identify each triangle below as equilateral, isosceles or scalene.

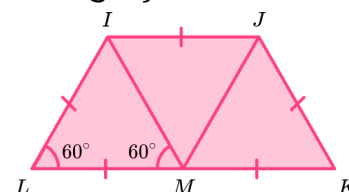
- 1) Triangle  $ABC$



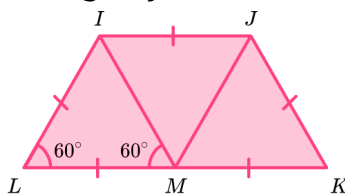
- 2) Triangle  $EFG$



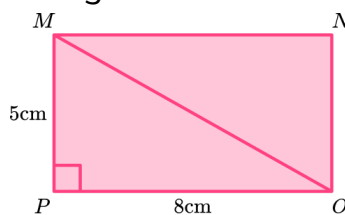
- 3)  $LMK$  is a straight line.  
Triangle  $JKM$



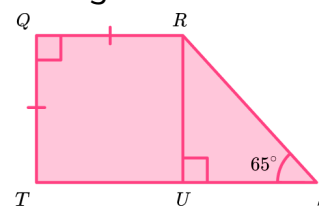
- 4)  $LMK$  is a straight line.  
Triangle  $IJK$



- 5) Triangle  $MNO$

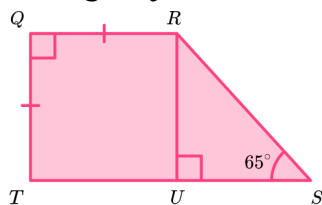


- 6) Triangle  $RSU$

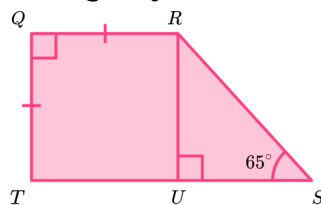


## Types of triangles - Worksheet

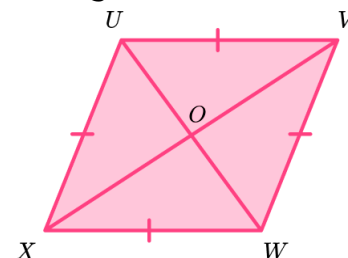
7) Triangle  $QRT$



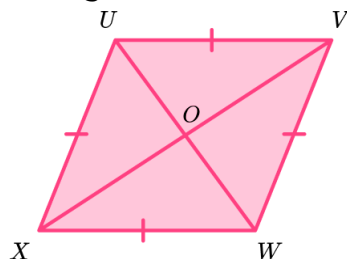
8) Triangle  $QRS$



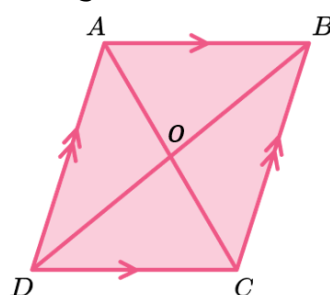
9) Triangle  $UVW$



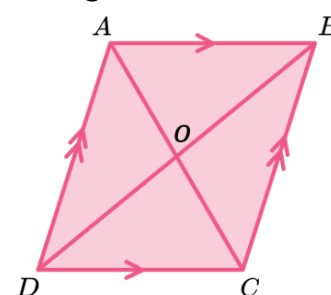
10) Triangle  $UVO$



11) Triangle  $ABC$



12) Triangle  $ABO$



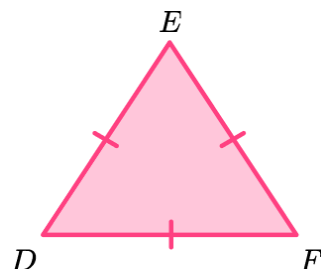
## Types of triangles - Worksheet

### Applied

- 1)
  - (a) Is it possible to construct a triangle which has side lengths of  $3\text{cm}$ ,  $3\text{cm}$  and  $10\text{cm}$ ? Explain your answer.
  - (b) One of the lengths that is  $3\text{cm}$  is changed to be  $8\text{cm}$ .  
Is it possible to construct this triangle?  
What type of triangle would it be?
- 2)
  - (a) A triangle has two equal angles. Given that two of the angles are  $50^\circ$  and  $80^\circ$ , how many possible triangles are there?
  - (b) This triangle has a line of symmetry which divides the shape into two congruent triangles. What would be the size of each angle in these congruent triangles?
- 3) Decide if each statement is always / sometimes / never true. Justify your answer.
  - (a) A triangle has a reflex angle.
  - (b) A triangle has equal sides so therefore is an equilateral triangle.
  - (c) If you draw any quadrilateral and draw a line between two opposite vertices, you will have two congruent triangles.
- 4) Draw an equilateral triangle and mark the midpoints of each side.  
  
Join the midpoints together.  
  
What shape is now inside the equilateral triangle?  
  
What would happen if you repeated this process?

## Types of triangles - Exam Questions

- 1) (a) Name this triangle

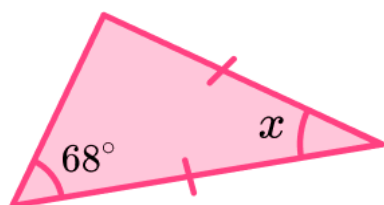


.....  
(1)

- (b) Sketch an isosceles triangle.  
Mark the triangle to show that it is isosceles.

(1)  
(2 marks)

- 2) (a) This diagram shows a triangle.



Not to scale

Name the type of triangle.

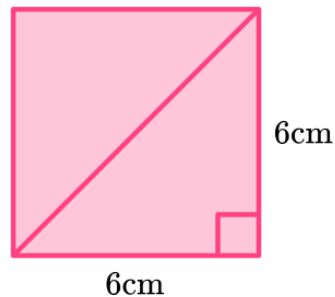
.....  
(1)

- (b) Casey calculates angle  $x$  as  $x = 68^\circ$ . Why is she wrong?

.....  
(1)  
(2 marks)

## Types of triangles - Exam Questions

- 3) (a) This diagram shows a square.



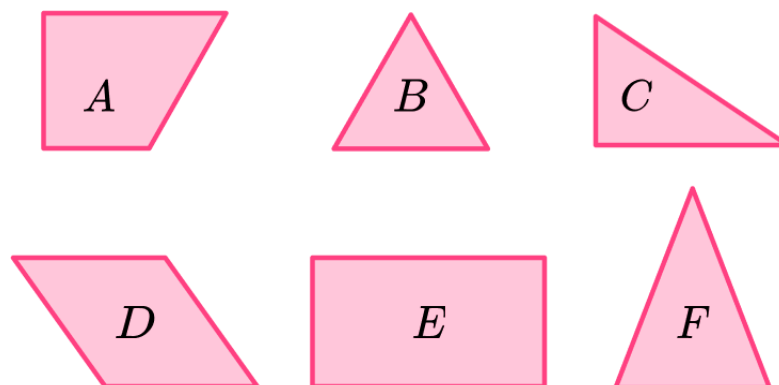
A diagonal line from opposite vertices is drawn.  
What is the name of the triangle?

.....  
(1)

- (b) Calculate the area of one of the triangles.  
Give the correct units for your answer.

.....  
(2)  
(3 marks)

- 4) This diagram shows six shapes on a centimetre grid.



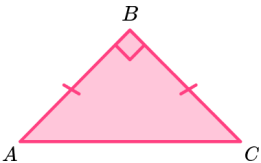
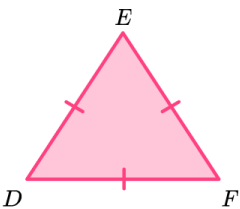
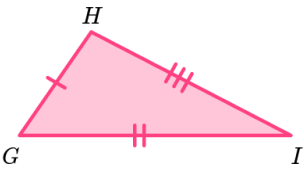
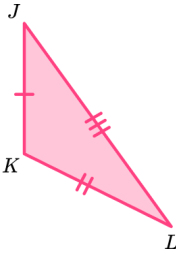
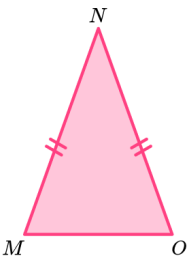
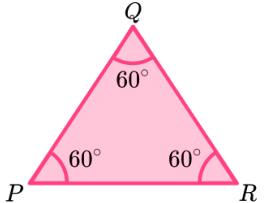
- (a) Name shape C

.....  
(1)

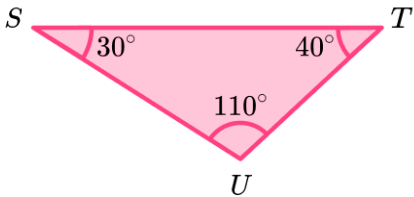
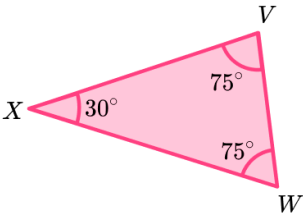
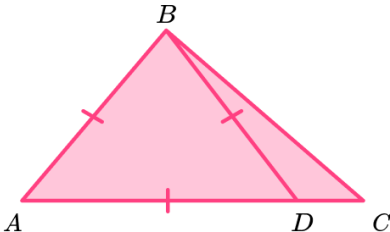
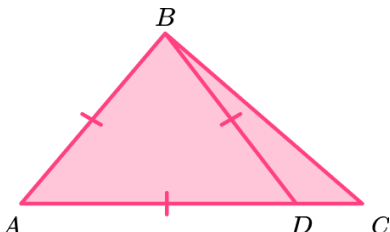
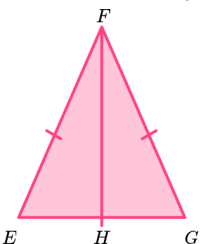
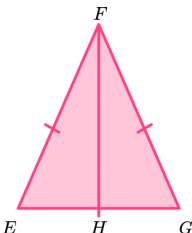
- (b) Name Shape F.

.....  
(1)  
(2 marks)

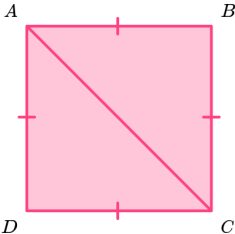
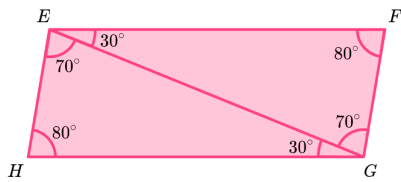
## Types of triangles - Answers

|         | Question                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Answer                                                                                                                                 |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|         | Skill Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                        |
| Group A | <p>Identify each triangle below as equilateral, isosceles or scalene.</p> <p>1) </p> <p>2) </p> <p>3) </p> <p>4) </p> <p>5) </p> <p>6) </p> | <p>1) (Right-angled) Isosceles</p> <p>2) Equilateral</p> <p>3) Scalene</p> <p>4) Scalene</p> <p>5) Isosceles</p> <p>6) Equilateral</p> |

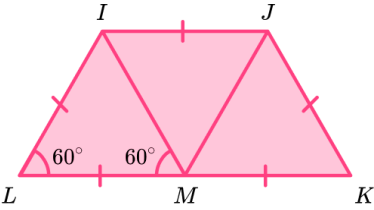
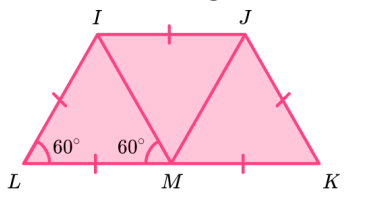
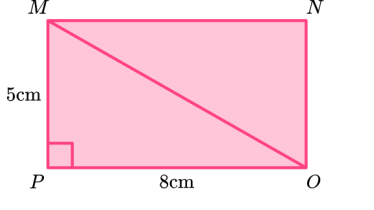
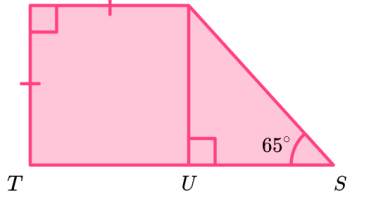
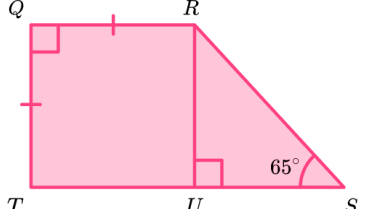
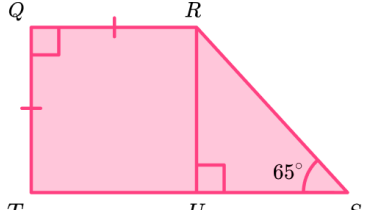
## Types of triangles - Answers

|                  |                                                                                                                                                                                    |                                   |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Group A<br>contd | <p><b>7)</b></p>                                                                                  | <b>7)</b> Scalene                 |
|                  | <p><b>8)</b></p>                                                                                  | <b>8)</b> Isosceles               |
|                  | <p><b>9)</b> Triangle <math>ABD</math></p>                                                       | <b>9)</b> Equilateral             |
|                  | <p><b>10)</b> Triangle <math>BCD</math></p>                                                     | <b>10)</b> Scalene                |
|                  | <p><b>11)</b> <math>H</math> is the midpoint of <math>EG</math>. Triangle <math>EFG</math></p>  | <b>11)</b> Isosceles              |
|                  | <p><b>12)</b> <math>H</math> is the midpoint of <math>EG</math>. Triangle <math>HFG</math></p>  | <b>12)</b> Right-angle or Scalene |

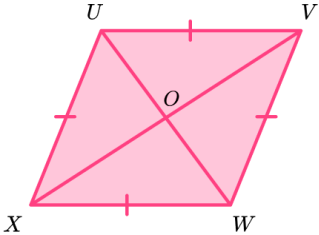
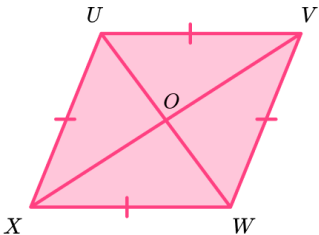
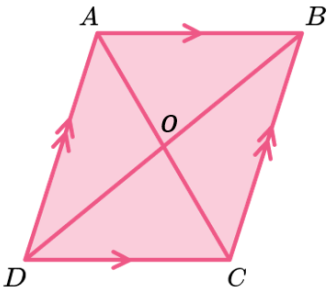
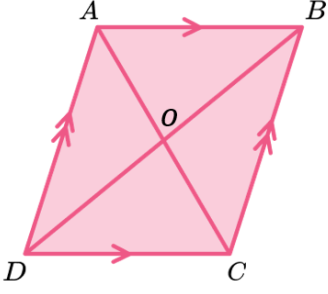
## Types of triangles - Answers

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Group B</b> | <p>Identify each triangle below as equilateral, isosceles, right-angled or scalene from each description.</p> <ol style="list-style-type: none"> <li>1) Three equal sides.</li> <li>2) Two equal angles.</li> <li>3) One line of symmetry.</li> <li>4) Three unequal sides.</li> <li>5) Three equal angles.</li> <li>6) Two equal sides.</li> <li>7) Three lines of symmetry.</li> <li>8) Three unequal angles.</li> <li>9) No lines of symmetry.</li> </ol> | <ol style="list-style-type: none"> <li>1) Equilateral</li> <li>2) (Right-angled) Isosceles</li> <li>3) (Right-angled) Isosceles</li> <li>4) Scalene (or right-angled in special cases)</li> <li>5) Equilateral</li> <li>6) Isosceles</li> <li>7) Equilateral</li> <li>8) Scalene (or right-angled in special cases)</li> <li>9) Scalene (or right-angled in special cases)</li> </ol> |
| <b>Group C</b> | <p>Identify each triangle below as equilateral, isosceles, right-angled or scalene.</p> <ol style="list-style-type: none"> <li>1) Triangle <math>ABC</math><br/>  </li> <li>2) Triangle <math>EFG</math><br/>  </li> </ol>                                                             | <ol style="list-style-type: none"> <li>1) Isosceles</li> <li>2) Scalene</li> </ol>                                                                                                                                                                                                                                                                                                    |

## Types of triangles - Answers

|                  |                                                                                                                                                            |                             |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Group C<br>contd | <p>3) <math>LMK</math> is a straight line. Triangle <math>JKM</math></p>  | 3) Equilateral              |
|                  | <p>4) <math>LMK</math> is a straight line. Triangle <math>IJK</math></p>  | 4) Isosceles                |
|                  | <p>5) Triangle <math>MNO</math></p>                                      | 5) Right-angled             |
|                  | <p>6) Triangle <math>RSU</math></p>                                     | 6) Right-angled             |
|                  | <p>7) Triangle <math>QRT</math></p>                                     | 7) (Right-angled) Isosceles |
|                  | <p>8) Triangle <math>QRS</math></p>                                     | 8) Scalene                  |

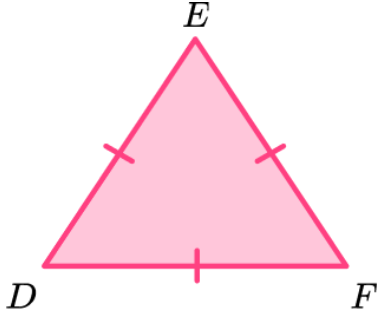
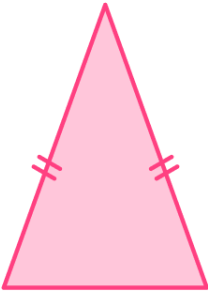
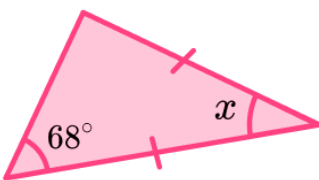
## Types of triangles - Answers

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                           |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Group C<br>contd | <p><b>9)</b> Triangle <math>UVW</math></p>  <p><b>10)</b> Triangle <math>UVO</math></p>  <p><b>11)</b> Triangle <math>ABC</math></p>  <p><b>12)</b> Triangle <math>ABO</math></p>  | <p><b>9)</b> Isosceles</p> <p><b>10)</b> (Right-angled) Isosceles</p> <p><b>11)</b> Scalene</p> <p><b>12)</b> Scalene</p> |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|

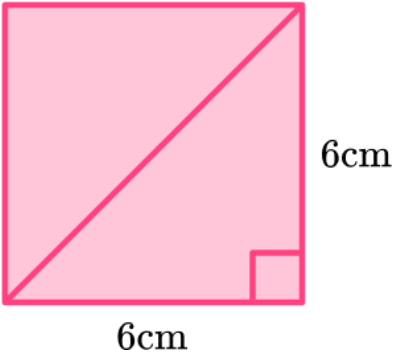
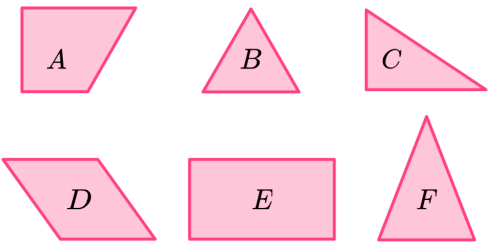
## Types of triangle- Answers

|    | Question                                                                                                                                                                                                                                                                                                                                                                          | Answer                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Applied Questions                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1) | <p><b>a)</b> Is it possible to construct a triangle which has side lengths of <math>3\text{cm}</math>, <math>3\text{cm}</math> and <math>10\text{cm}</math>? Explain your answer.</p> <p><b>b)</b> One of the lengths that is <math>3\text{cm}</math> is changed to be <math>8\text{cm}</math>. Is it possible to construct this triangle? What type of triangle would it be?</p> | <p><b>a)</b> No. The two shorter lengths have a sum of less than the longest length.</p> <p><b>b)</b> Yes. Two sides total more than the remaining side. Scalene triangle.</p>                                                                                                                                                                                                                                                                    |
| 2) | <p><b>a)</b> A triangle has two equal angles. Given that two of the angles are <math>50^\circ</math> and <math>80^\circ</math>, how many possible triangles are there?</p> <p><b>b)</b> This triangle has a line of symmetry which divides the shape into two congruent triangles. What would be the size of each angle in these congruent triangles?</p>                         | <p><b>a)</b> One possible triangle as <math>50 + 50 + 80 = 180</math> but <math>50 + 80 + 80 = 210</math> and angles in a triangle sum to <math>180^\circ</math>.</p> <p><b>b)</b> The base angles are <math>50^\circ</math>. The angle that is <math>80^\circ</math> is divided by two. The angle between the base and line of symmetry is <math>90^\circ</math>. So <math>50^\circ</math>, <math>40^\circ</math> and <math>90^\circ</math>.</p> |
| 3) | <p>Decide if each statement is always / sometimes / never true. Justify your answer.</p> <p><b>a)</b> A triangle has a reflex angle.</p> <p><b>b)</b> A triangle has equal sides so therefore is an equilateral triangle.</p> <p><b>c)</b> If you draw any quadrilateral and draw a line between two opposite vertices, you will have two congruent triangles.</p>                | <p><b>a)</b> Never true. Angles in a triangle sum to <math>180^\circ</math> and a reflex angle is greater than <math>180^\circ</math>.</p> <p><b>b)</b> Always true. If the sides are equal, each angle also has to be <math>60^\circ</math>.</p> <p><b>c)</b> Sometimes true. It is true for a square, rectangle, rhombus, isosceles trapezium and a kite.</p>                                                                                   |
| 4) | <p>Draw an equilateral triangle and mark the midpoints of each side. Join the midpoints together. What shape is now inside the equilateral triangle? What would happen if you repeated this process?</p>                                                                                                                                                                          | <p>This would be an equilateral triangle and if you repeated the process you would continue drawing equilateral triangles of decreasing size.</p>                                                                                                                                                                                                                                                                                                 |

## Types of triangle- Mark Scheme

|    |     | Question                                                                                                                                                                           | Answer |                                                                                     |     |
|----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|-----|
|    |     | Exam Questions                                                                                                                                                                     |        |                                                                                     |     |
| 1) | (a) | Name this triangle<br>                                                                            | (a)    | Equilateral                                                                         | (1) |
|    | (b) | Sketch an isosceles triangle.<br>Mark the triangle to show that it is isosceles.                                                                                                   | (b)    |  | (1) |
| 2) | (a) | This diagram shows a triangle.<br><br><br><b>Not to scale</b><br><br>Name the type of triangle. | (a)    | Isosceles                                                                           | (1) |
|    | (b) | Casey calculates angle $x$ as $x = 68^\circ$ . Why is she wrong?                                                                                                                   | (b)    | The base angles in an isosceles triangle are equal angle $x$ is not a base angle.   | (1) |

## Types of triangle- Mark Scheme

|    |     |                                                                                                                                                                                                                            |                                                      |            |
|----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------|
| 3) | (a) | <p>This diagram shows a square.</p>  <p>6cm</p> <p>A diagonal line from opposite vertices is drawn. What is the name of the triangle?</p> | (a) (Right-angled) Isosceles                         | (1)        |
|    | (b) | <p>Calculate the area of one of the triangles. Give the correct units for your answer.</p>                                                                                                                                 | (b) 18<br>cm <sup>2</sup>                            | (1)<br>(1) |
| 4) | (a) | <p>This diagram shows six shapes on a centimetre grid.</p>  <p>Name shape C</p>                                                         | (a) Right angle triangle <b>or</b> scalene triangle. | (1)        |
|    | (b) | <p>Name Shape F</p>                                                                                                                                                                                                        | (b) Isosceles triangle                               | (1)        |

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