Corollary to the Base Angles Theorem:
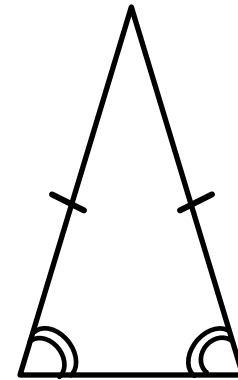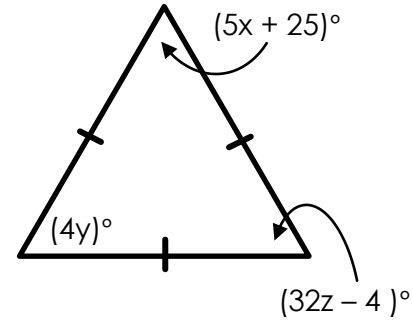
If a triangle is equilateral, then it is equiangular.

5 Find the value of x, y, and z.

$(5x + 25)°$

$(4y)°$

$(32z – 4)°$

Isosceles & Equilateral Triangles

Vocabulary

Isosceles

Equilateral

Base Angles Theorem:

If two sides of a triangle are congruent, then the angles opposite them are congruent.

Find the values of x and y.

1 $(7x + 2)°$ $(8x – 7)°$

$(2y)°$

2 $(4y)°$

$(2x + 4)°$ $(4x – 22)°$

Corollary to the Converse of the Base Angles Theorem:

If a triangle is equiangular, then it is equilateral.

6 **Find the perimeter of the triangle.**

$(6x + 16)$ cm

$(9x – 11)$ cm

Converse of the Base Angles Theorem:

If two angles of a triangle are congruent, then the sides opposite them are congruent.

Find the value of x.

3 $(5x + 7)$cm

42 cm

4 $(8x + 19)$ m 20 m

$(12x + 3)$ m

Corollary to the Base Angles Theorem

Base Angles Theorem & its Converse

Corollary to the Base Angles Theorem:

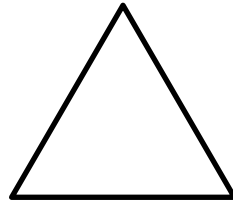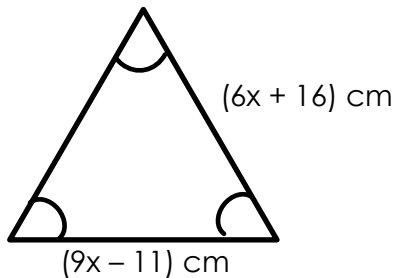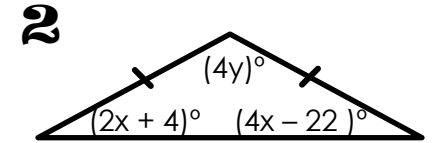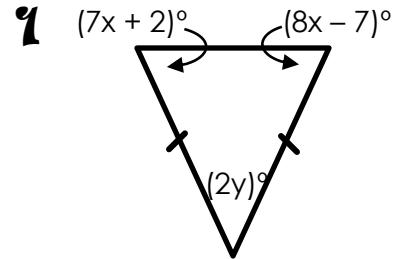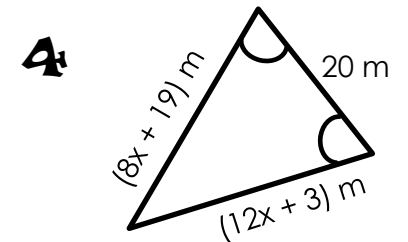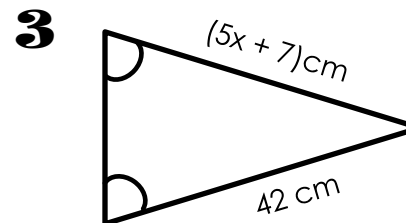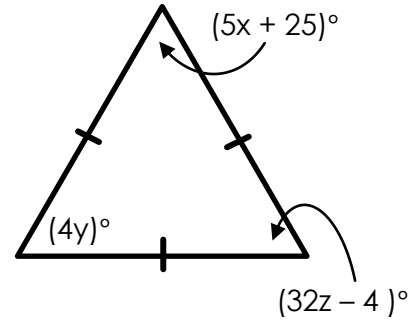If a triangle is equilateral, then it is equiangular.

5 Find the value of x, y, and z.

$(5x + 25)°$

$(4y)°$

$(32z - 4)°$

$180 \div 3 = 60$

$5x + 25 = 60$
$5x = 35$
$x = 7$

$4y = 60$
$y = 15$

$32z - 4 = 60$
$32z = 64$
$z = 2$

Isosceles & Equilateral Triangles

Vertex Angle
The angle formed by the legs

Legs
The 2 congruent sides of an equilateral triangle

Base Angles
The two angles adjacent to the base

Base
The third side of a triangle
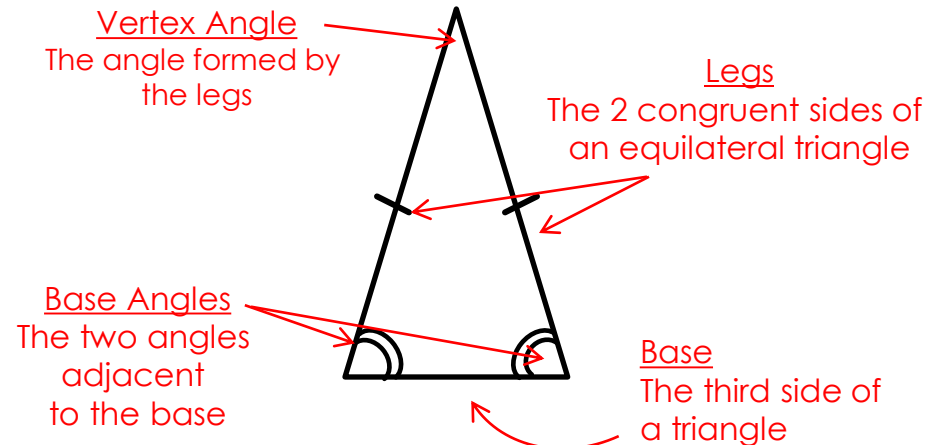
Vocabulary

Isosceles
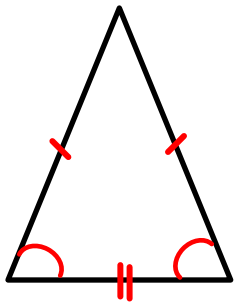
Exactly 2 congruent sides

Equilateral
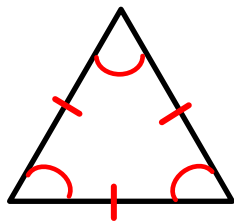
Exactly 3 congruent sides

Base Angles Theorem:

If two sides of a triangle are congruent, then the angles opposite them are congruent.

Find the values of x and y.

1

$(7x + 2)°$ $(8x – 7)°$ $(2y)°$

$7x + 2 = 8x – 7$
$2 = x – 7$
$x = 9$

$7x + 2$
$7(9) + 2$
$63 + 2 = 65$

$65 + 65 + 2y = 180$
$130 + 2y = 180$
$2y = 50$
$y = 25$

2

$(4y)°$ $(2x + 4)°$ $(4x – 22)°$

$2x + 4 = 4x – 22$
$4 = 2x – 22$
$26 = 2x$
$x = 13$

$2x + 4$
$2(13) + 4$
$24 + 4$
28

$28 + 28 + 4y = 180$
$56 + 4y = 180$
$4y = 124$
$y = 31$

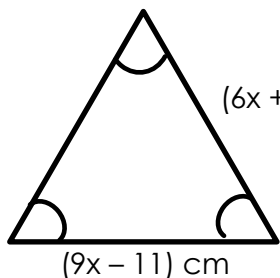## Corollary to the Converse of the Base Angles Theorem:

If a triangle is equiangular, then it is equilateral.

6 Find the perimeter of the triangle.

$(6x + 16)$ cm $(9x – 11)$ cm

$6x + 16 = 9x – 11$
$16 = 3x – 11$
$27 = 3x$
$x = 9$

$6x + 16$
$6(9) + 16$
$54 + 16$
70 cm
$\times 3$
210 cm

Converse of the Base Angles Theorem:

If two angles of a triangle are congruent, then the sides opposite them are congruent.

Find the value of x.

3

$(5x + 7)$cm 42 cm

$5x + 7 = 42$
$5x = 35$
$x = 6$

4

20 m $(8x + 19)$ m $(12x + 3)$ m

$8x + 19 = 12x + 3$
$19 = 4x + 3$
$16 = 4x$
$x = 4$

Corollary to the Base Angles Theorem

Base Angles Theorem & its Converse

Directions

Print pages 1 & 2 (3 & 4 for the answer key) double sided. On my printer, I use the option to print double sided and to flip along the long edge. If you are printing single sided, and then photocopying, you will need to manually flip the pages. (I recommend making one copy, cut, and fold to ensure you have printed it properly- foldables can sometimes be tricky!)

Have students cut the sheet in half (along the dotted line).

Then, line up the two pieces as shown:
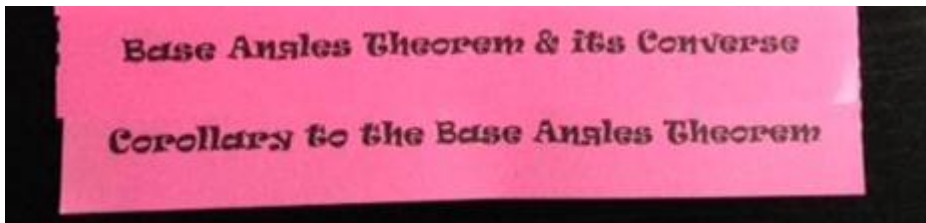
Lastly, fold over the top half and secure with a few staples at the top.

The final product should look like this: