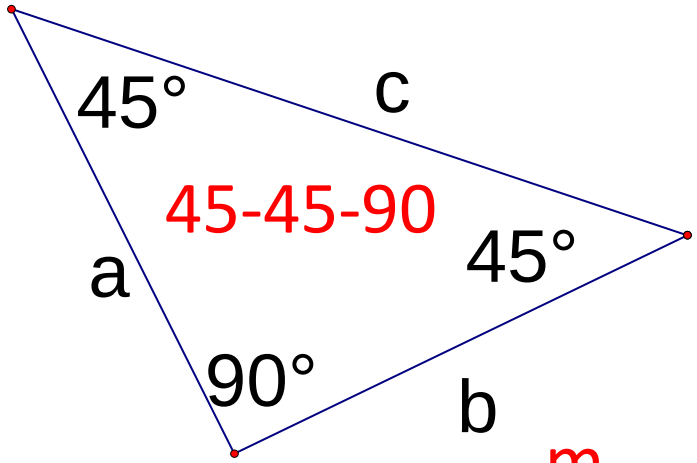
Special Right Triangles

IC0

Fill in the table below using the diagram and information given. Each row represents a new triangle, but all triangles have the angle measures given in the diagram. Do scratch work off to the side. Leave answers in reduced radical form.



m m m √2

	a	b	c
1.	5	5	5√2
2.	7	7	7√2
3.	13	13	13√2
4.	3√2	3√2	6
5.	4√3	4√3	4√6

5) $(4\sqrt{3})^2 + (4\sqrt{3})^2 = c^2$

$48 + 48 = c^2$

$96 = c^2$

$c = 4\sqrt{6}$

a = Leg = m

b = Leg = m

c = Hypotenuse - m√2

1) $5^2 + 5^2 = c^2$

$50 = c^2$

$c = 5\sqrt{2}$

2) $7^2 + 7^2 = c^2$

$98 = c^2$

$c = 7\sqrt{2}$

3) $a^2 + a^2 = (13\sqrt{2})^2$

$2a^2 = 338$

$a^2 = 169$

$a = 13$

4) $(3\sqrt{2})^2 + (3\sqrt{2})^2 = c^2$

$18 + 18 = c^2$

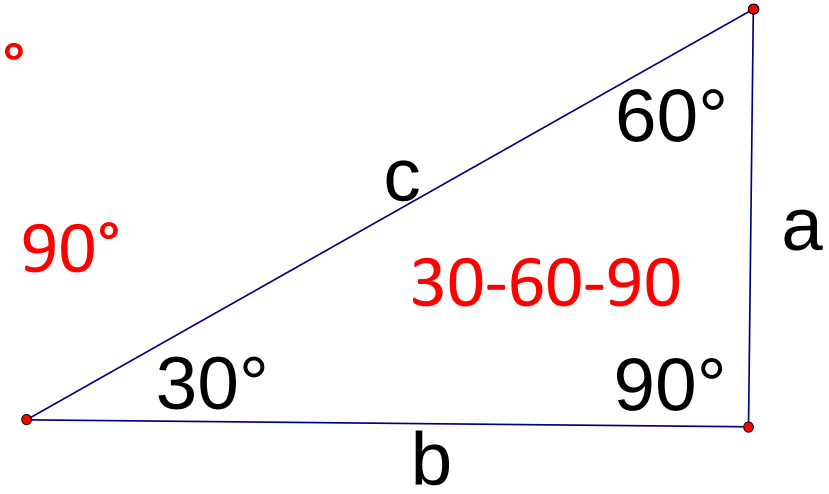
$36 = c^2$

$c = 6$

Short leg → across from 30°

Med leg → across from 60°

Hypotenuse → across from 90°



a = Short leg = m

b = Medium leg = m√3

c = Hypotenuse = 2m

5) $(4\sqrt{2})^2 + b^2 = (8\sqrt{2})^2$

$32 + b^2 = 128$

$b^2 = 96$

$b = 4\sqrt{6}$

1) $5^2 + b^2 = 10^2$

$25 + b^2 = 100$

$b^2 = 75$

$b = 5\sqrt{3}$

2) $a^2 + (7\sqrt{3})^2 = 14^2$

$a^2 + 147 = 196$

$a^2 = 49$

$a = 7$

3) $3^2 + (3\sqrt{3})^2 = c^2$

$9 + 27 = c^2$

$36 = c^2$

$c = 6$

4) $a^2 + 9^2 = (6\sqrt{3})^2$

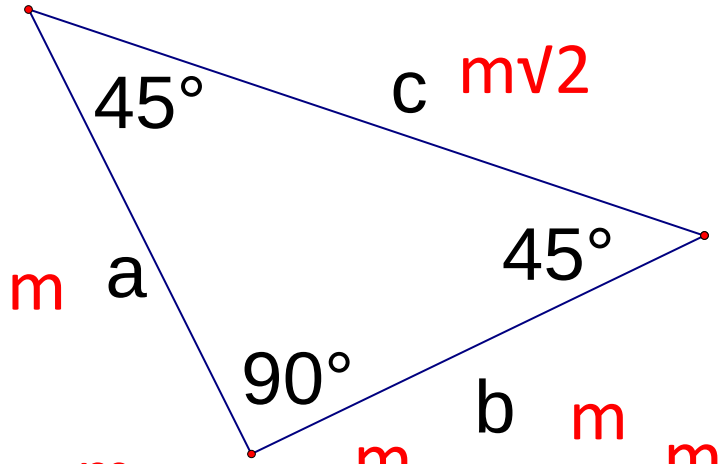
$a^2 + 81 = 108$

$a^2 = 27$

$a = 3\sqrt{3}$

	m	m √3	2m
	a	b	c
1.	5	5√3	10
2.	7	7√3	14
3.	3	3√3	6
4.	3√3	9	6√3
5.	4√2	4√6	8√2

Fill in the table below using the properties of special right triangles and the information given. Each row represents a new triangle, but all triangles have the angle measures given in the diagram. Do scratch work on the back.



	a	b	c
1.	2	2	2√2
2.	6√2	6√2	12
3.	5√2	5√2	10
4.	$4\sqrt{7}$	4√7	4√14
5.	9√11	$9\sqrt{11}$	9√22

a = m

b = m

c = m√2

3) √2m √2 = 10 √2

2m= 10 √2

m = 5 √2

3) $\frac{m\sqrt{2}}{\sqrt{2}} = \frac{10}{\sqrt{2}}$

$m = \frac{10}{\sqrt{2}}\sqrt{2}$

$m = \frac{10\sqrt{2}}{\sqrt{2}\sqrt{2}}$

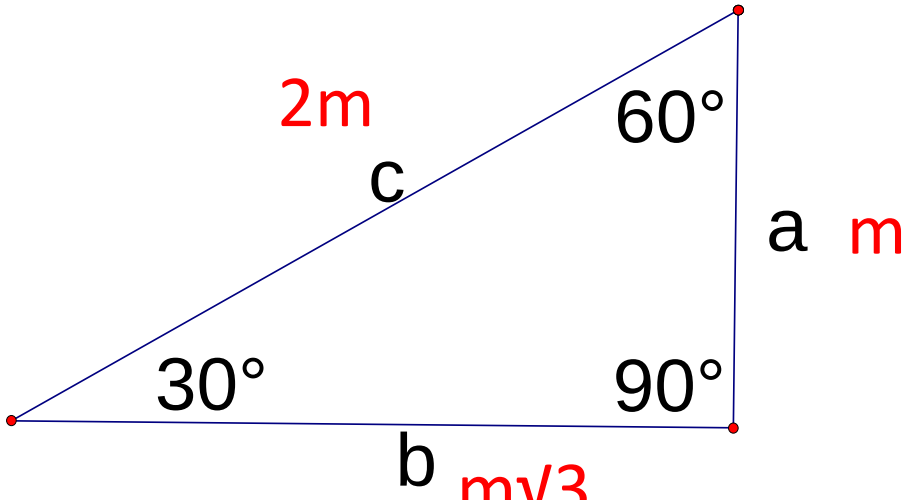
$m = \frac{10\sqrt{2}}{2}$

m = 5 √2

2) 6 √2(√2) = 6(2) = 12

4) 4 √7(√2) = 4 √14

5) 9 √11(√2) = 9 √22



a = m

b = m√3

c = 2m

m m √3 2m

	a	b	c
1.	17	17√3	34
2.	9	9√3	18
3.	4√17	4√51	8√17
4.	4√3	12	8√3
5.	4√2	4√6	8√2