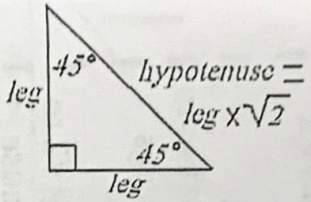
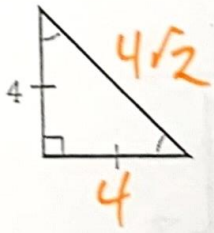
Notes: Special Right Triangles 5.2.1



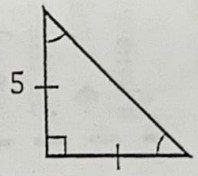
45° – 45° – 90° Special Right Triangles

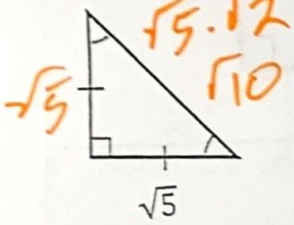
(Isosceles right Δ)



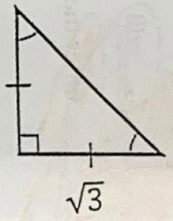
- Legs are EQUAL
- one leg equals 4, then the other leg has to be 4
- to find the Hypotuse multiply by the leg times √2

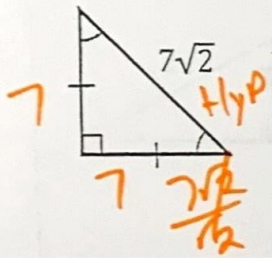
You try!



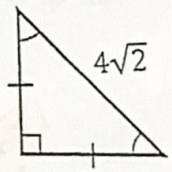


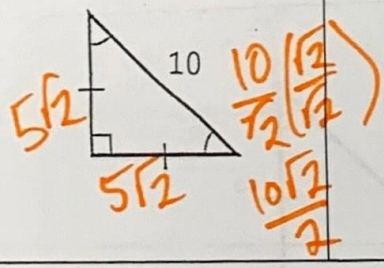
- Legs are EQUAL
- multiply √5 times √2 to find the hypotenuse



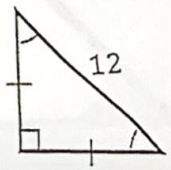


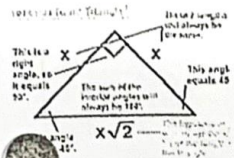
- When given the leg, you multiply by the √2 to find the hypotenuse.
- To find each leg when the hypotenuse is given, divide the hypotenuse by the √2
- Your answer will be the length of both SIDES





- When the hypotenuse if a whole #, still divide by the √2 to find each leg (rationalize the denominator)
- legs are EQUAL

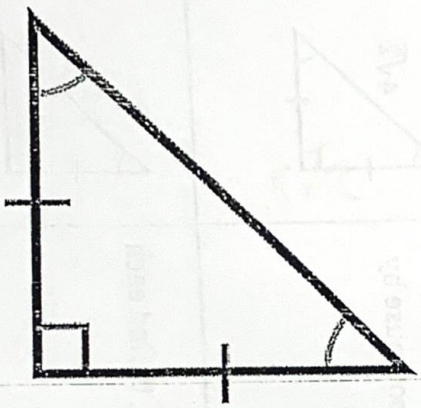




Special Right Triangles 5.2.1

45° – 45° – 90° Right Triangle

(Isosceles) Right Triangle



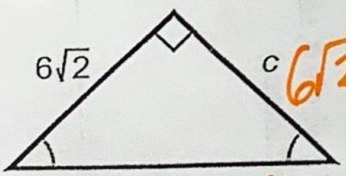
The _____ will be _____ times the legs

_____ legs will always be ___

HOW TO SOLVE...

I know one leg...
→ missing leg has to be the same... (Legs are =)
→ multiply by $\sqrt{2}$ to find the hypotenuse

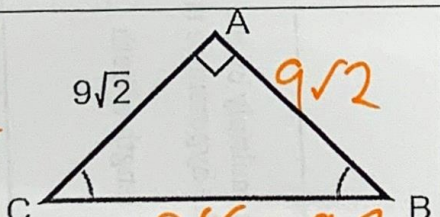
I know the hypotenuse...
→ divide by $\sqrt{2}$ to find the legs



c = 6√2

$6\sqrt{2}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) = 6 \cdot 2$

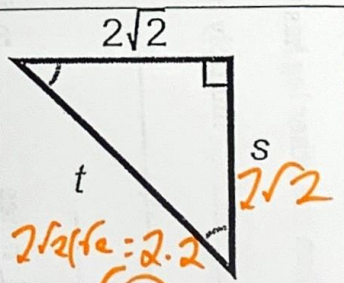
12



$9\sqrt{2}$

$9\sqrt{2}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) = 9 \cdot 2$

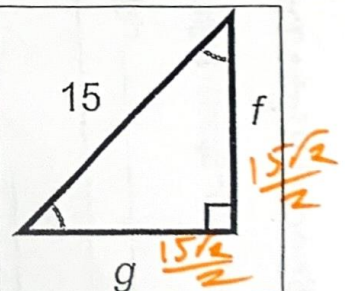
18



$2\sqrt{2}$

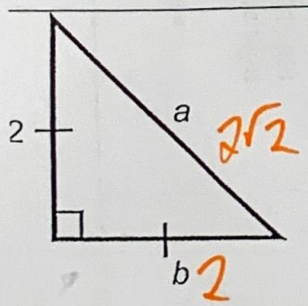
$2\sqrt{2}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) = 2 \cdot 2$

4



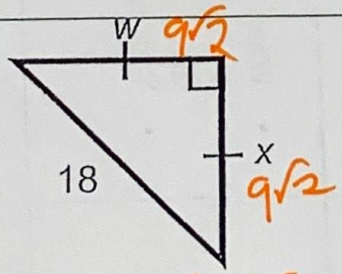
$\frac{15\sqrt{2}}{2}$

$\frac{15}{\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) \frac{15\sqrt{2}}{2}$



$2\sqrt{2}$

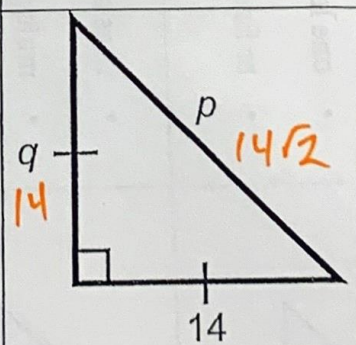
b = 2



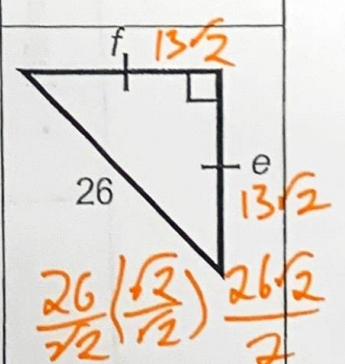
w = $9\sqrt{2}$

x = $9\sqrt{2}$

$\frac{18}{\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) \frac{18\sqrt{2}}{2}$



$14\sqrt{2}$

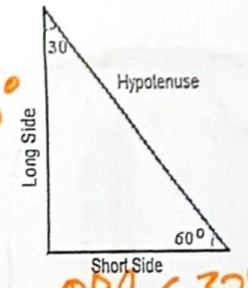


f = $13\sqrt{2}$

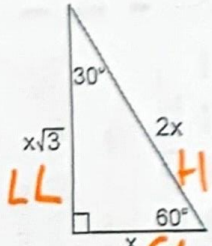
e = $13\sqrt{2}$

$\frac{26}{\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) \frac{26\sqrt{2}}{2}$

Notes: Special Right Triangles 5.2.1



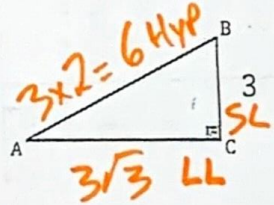
OPP ∠60°



LL Hypot SL

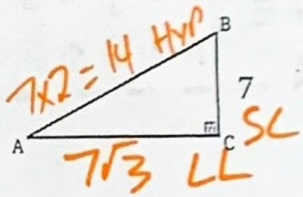
OPP ∠30°

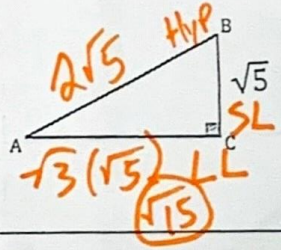
30° – 60° – 90° Special Right Triangles



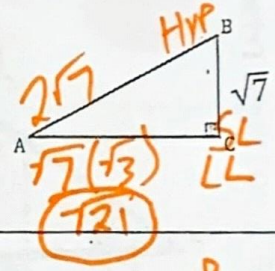
- to find the hypotenuse, multiply the SHORT leg by 2
- to find the LONG leg, multiply the SHORT leg by √3

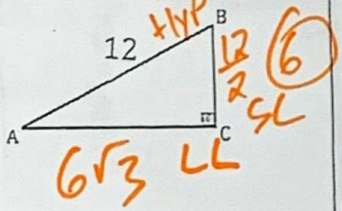
You try!





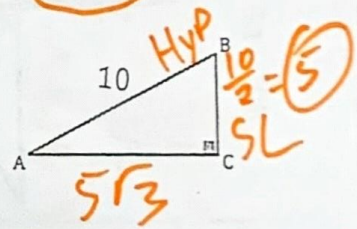
- to find the hypotenuse, multiply the SHORT leg by 2
- to find the LONG leg, multiply the short leg by √3

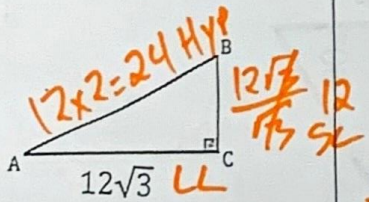




- the SHORT leg is half the length of the Hypotnuse
- multiply the SHORT leg by the √3 to find the long leg

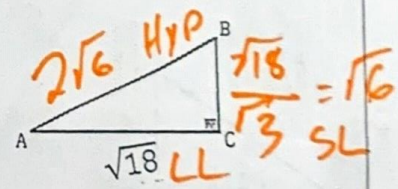
*If you start w/ a Hypotnuse



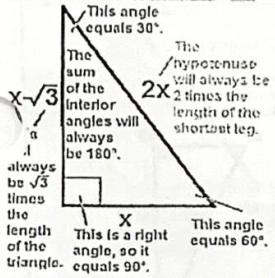


- to find the SHORT leg, divide the long leg by √3
- to find the hypotenuse multiply the SHORT leg by 2

*If you start w/ a Long Leg

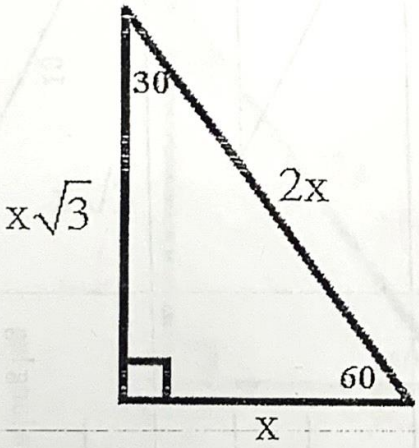


Scalene Right Triangle



Special Right Triangles 5.2.1

30° – 60° – 90° Right Triangle



HOW TO SOLVE...

I know the short leg...

→ multiply by 2 to find the hypotenuse

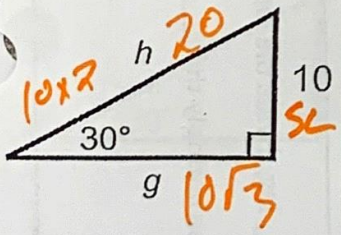
→ multiply by $\sqrt{3}$ to find the long leg

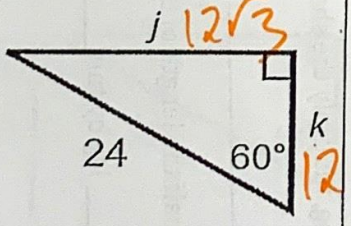
I know the hypotenuse...

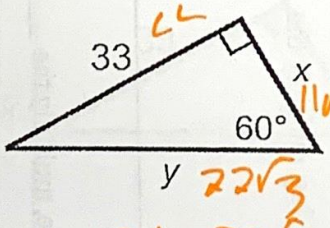
→ divide by 2 to get the short leg

I know the long leg...

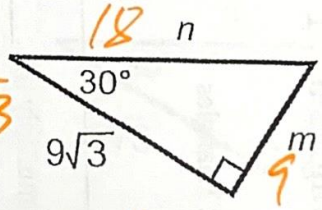
→ divide by the $\sqrt{3}$ to find the short leg



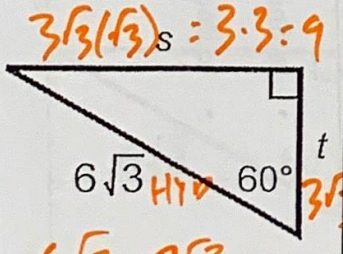




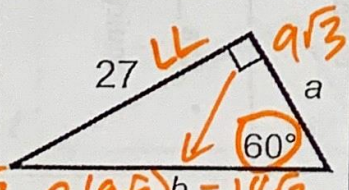
33(√3/√3) = 33√3/3



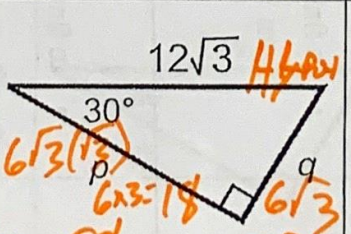
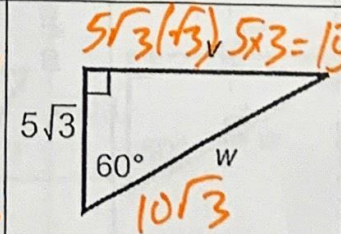
9√3/√3 = 9



6√3/2 = 3√3



27/√3 (√3/√3) 27√3/√9 27√3/3



12√3/2 = 6√3