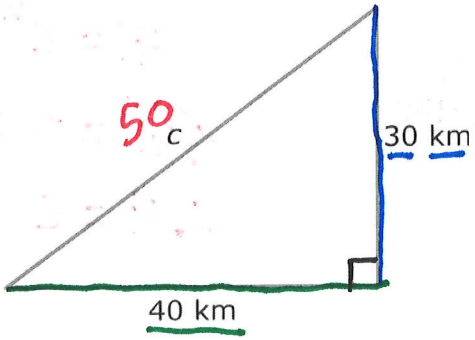
Worked Examples - Pythagorean Theorem (IXL Geometry P.1)

1.



$leg^2 + leg^2 = hyp.^2$

$30^2 + 40^2 = hyp^2$

$900 + 1600 = hyp^2$

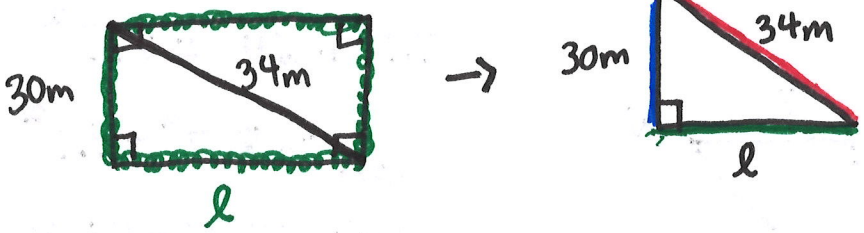
$2500 = hyp^2$

$\sqrt{2500} = hyp$

$50 = hyp.$

What is the length of the hypotenuse? If necessary, round to the nearest tenth.

2. Kelly is decorating a ballroom ceiling with garland. The width of the rectangular ceiling is 30 meters and the diagonal distance from one corner to the opposite corner is 34 meters. How much garland will Kelly need for the length of the ceiling?



$leg^2 + leg^2 = hyp^2$

$30^2 + \ell^2 = 34^2$

$900 + \ell^2 = 1156$

$-900 \quad -900$

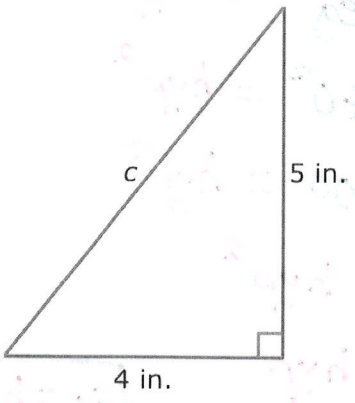
$\ell^2 = 256$

$\sqrt{\ell^2} = \sqrt{256}$

$\ell = 16$

Kelly needs 16 m of garland.

3.



$4 + 5 + c = \text{Perimeter}$

$4 + 5 + 6.4$

15.4 = Perimeter

$a^2 + b^2 = c^2$

$4^2 + 5^2 = c^2$

$16 + 25 = c^2$

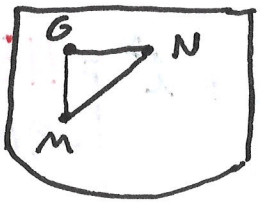
$41 = c^2$

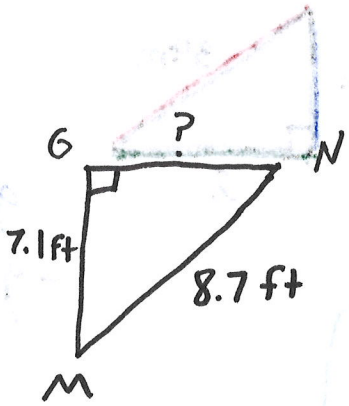
$\sqrt{41} = \sqrt{c^2}$

$6.4 = c$

What is the perimeter? If necessary, round to the nearest tenth.

4. Three ballet dancers are positioned on stage. Gwen is straight behind Mike and directly left of Nick. If Mike and Gwen are 7.1 feet apart, and Nick and Mike are 8.7 feet apart, what is the distance between Gwen and Nick? If necessary, round to the nearest tenth.





$a^2 + b^2 = c^2$

$7.1^2 + GN^2 = 8.7^2$

$GN^2 = 8.7^2 - 7.1^2$

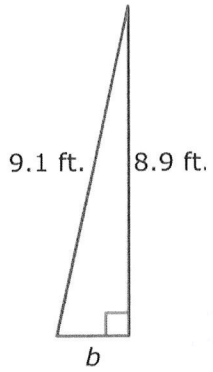
$GN^2 = 75.69 - 50.41$

$GN^2 = 25.28$

$\sqrt{GN^2} = \sqrt{25.28}$

GN = 5 ft

5.



$a^2 + b^2 = c^2$

$8.9^2 + b^2 = 9.1^2$

$b^2 = 9.1^2 - 8.9^2$

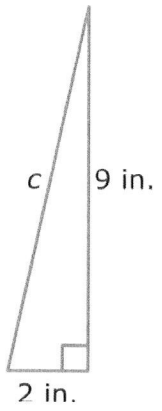
$b^2 = 3.6$

$b = \sqrt{3.6}$

$\boxed{b = 1.9}$

What is the length of the missing leg? If necessary, round to the nearest tenth.

6.



$a^2+b^2=c^2$

$9^2+2^2=c^2$

$81+4=c^2$

$85=c^2$

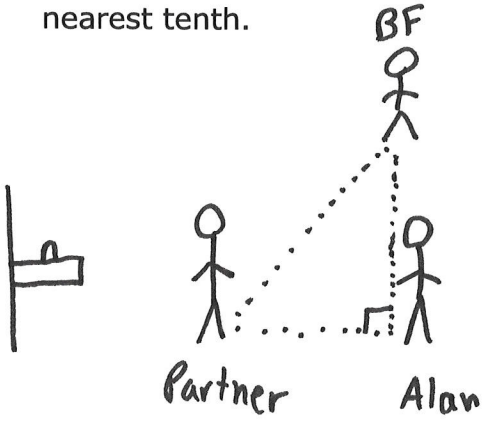
$\sqrt{85}=\sqrt{c^2}$

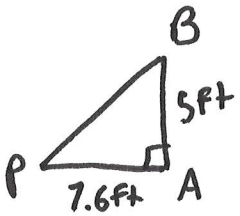
$\sqrt{85}=c$

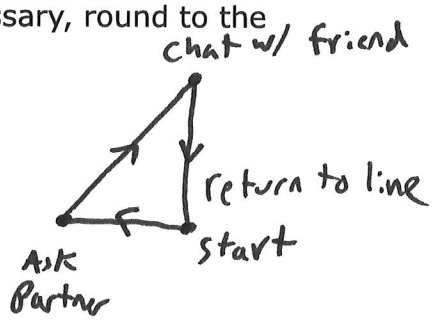
$c=9.2$

What is the length of the hypotenuse? If necessary, round to the nearest tenth.

7. While standing in line for the water fountain, Alan sees his lab partner 7.6 feet ahead of him and his best friend 5 feet to his right. Alan wants to go ask his lab partner a question, then go chat with his friend, and finally return to the water fountain line. How far will Alan have to walk in all? If necessary, round to the nearest tenth.







$5^2+7.6^2=PB^2$

$25+57.76=PB^2$

$82.76=PB^2$

$\sqrt{82.76}=\sqrt{PB^2}$

$9.1=PB$

$7.6+9.1+5$

21.7 ft Alan has to walk