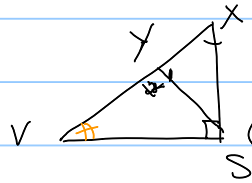
Note Title 2/10/2016

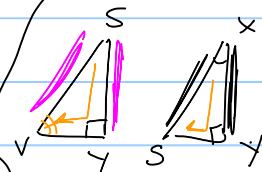
MAP:

7. G: $\overline{SY}$ alt, $\angle VSX$ rt $\angle$

P: $XY \cdot SV = XS \cdot YS$



1. $\overline{SY}$ alt, $\angle VSX$ rt $\angle$ 1. Given
2. $\triangle XYS \sim \triangle SYV$ 2. Alt-Hyp $\Rightarrow \sim \triangle s$
3. $XY/XS = YS/SV$ 3. $\sim \triangle s \Rightarrow$ corr sds prop
4. $XY \cdot SV = XS \cdot YS$ 4. Means Extremes Product

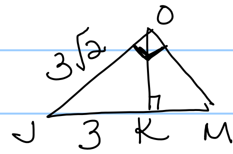


$\triangle XYS \sim \triangle SYV$?

$$\frac{XY}{XS} = \frac{YS}{SV}$$

P: $XY \cdot SV = XS \cdot YS$

4c $JO = 3\sqrt{2}$, $JK = 3$, $JM = ?$



$\text{leg}^2 = (\text{close})(\text{whole})$

$JO^2 = JK \cdot JM$

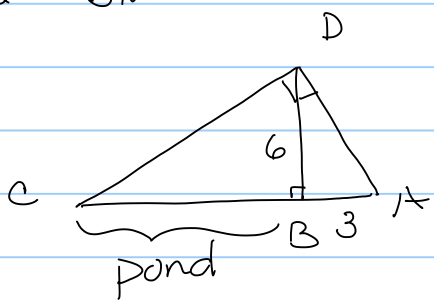
$(3\sqrt{2})^2 = 3 \cdot JM$

$9 \cdot 2 = 3\,JM$

$18/3 = JM$

$6 = JM$

14.



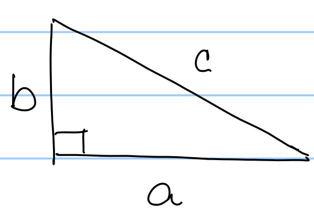
$\text{alt}^2 = \text{part} \cdot \text{part}$

$DB^2 = CB \cdot BA$

$6^2 = \text{pond} \cdot 3$

$12\text{m} = \text{pond}$

9.4: Geometry's Most Elegant Theorem



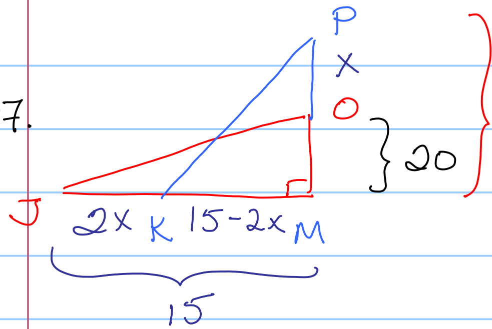
$c^2 = a^2 + b^2$

$\text{hyp}^2 = \text{leg}^2 + \text{leg}^2$

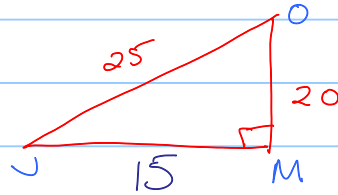
T69: rt$\triangle \Rightarrow a^2 + b^2 = c^2$

T70: $a^2 + b^2 = c^2 \Rightarrow$ rt$\triangle$

37.



Ladder = 25 ft



(leg, leg, hyp)

Reduced △ Principle

$(15, 20, 25)$

$5\,(3,\ 4,\ 5)$

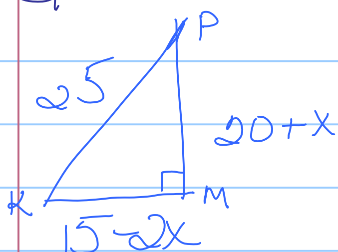
$a^2 + 4^2 = 5^2$

$a^2 = 25 - 16$

$a^2 = 9$

$a = 3$

G: JK = 2(PO)



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

$$(20+x)^2 + (15-2x)^2 = 25^2$$

$$(20+x)(20+x) + (15-2x)(15-2x) = 625$$

$$400 + 20x + 20x + x^2 + 225 - 30x - 30x + 4x^2 = 625$$

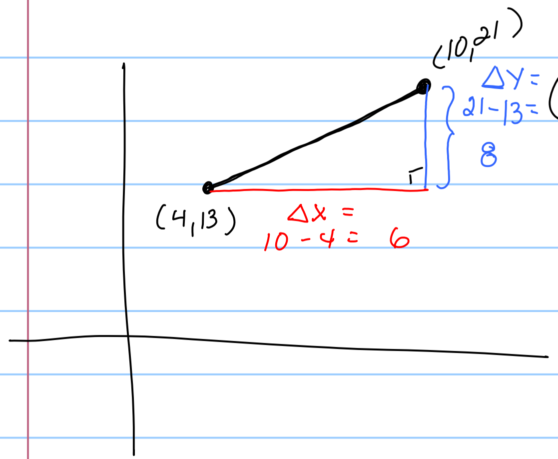
$$5x^2 - 20x + 625 = 625$$

$$5x^2 - 20x = 0$$

$$5x(x-4) = 0$$

$$x = 0 \text{ or } 4$$

9.5: Distance Formula



(10, 21)
(4, 13)

$(6, 8, \underline{10})$

$2(3, 4, \underline{5})$

$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$25 = c^2$

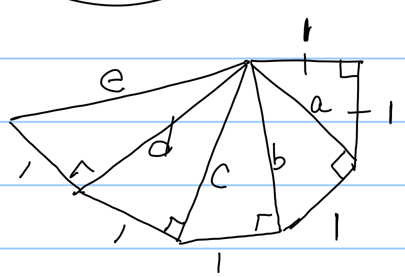
$5 = c$

Pyth. Triples: rt Δ sides integers
(3, 4, 5)

$\sqrt{leg^2 + leg^2} = \text{Dist}$

$\sqrt{\Delta x^2 + \Delta y^2}$

$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$



$1^2 + 1^2 = a^2$

$2 = a^2$

$\sqrt{2} = a$

$\sqrt{2}^2 + 1^2 = b^2$

$2 + 1 = b^2$

$3 = b^2$

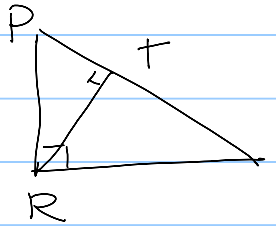
$\sqrt{3} = b$

find $e = \sqrt{6}$

P8

see 9.3:7 above

#6

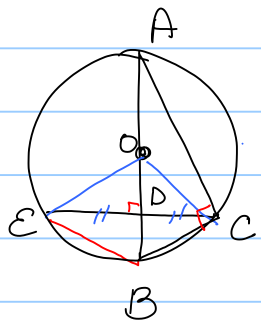


G: $\overline{RT}$ alt, $\angle PRS$ rt$\angle$

P: $\frac{PR}{RS} = \frac{RT}{ST}$

1. $\overline{RT}$ alt, $\angle PRS$ rt$\angle$	1. Given
2. $\triangle PRS \sim \triangle RTS$	2. Alt Hyp $\Rightarrow \sim \triangle s$
3. $PR/RS = RT/ST$	3. $\sim \triangle s \Rightarrow$ corr sds prop

15.



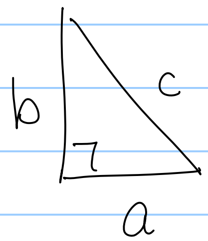
G: $\odot O$, $\overline{CD} \perp \overline{AB}$, $\angle ACB$ rt$\angle$

P: a $AD/CD = CD/BD$

6. $AD/ED = ED/BD$

1. $\odot O$, $\overline{CD} \perp \overline{AB}$, $\angle ACB$ rt$\angle$	1. Given
2. $\triangle ADC \sim \triangle CDB$	2. alt-Hyp $\Rightarrow \sim \triangle s$
3. $\frac{AD}{DC} = \frac{CD}{DB}$	3. $\sim \triangle s \Rightarrow$ corr sds prop
4. Draw $\overline{OE}$ & $\overline{OC}$	4. Aux
5. $\overline{OE} \cong \overline{OC}$	5. $\odot \Rightarrow \cong$ rad
6. $\angle ODE$ & $\angle ODC$ rt$\angle$s	6. $\perp \Rightarrow$ rt$\angle$s
7. $\overline{OD} \cong \overline{OD}$	7. Ref
8. $\triangle ODE \cong \triangle ODC$	8. HL (6, 5, 7)
9. $\overline{ED} \cong \overline{DC}$	9. CPCTC
10. $AC/ED = ED/DB$	10. Substitute

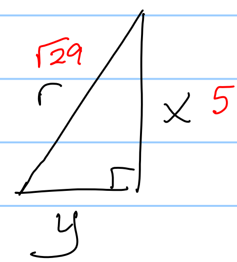
9.4: Geometry's Most Elegant Thm



T69: rt $\triangle \Rightarrow c^2 = a^2 + b^2$

T70: $a^2+b^2=c^2 \Rightarrow$ rt $\triangle$

Ex: If: $x=5$, $r=\sqrt{29}$



$x^2+y^2=r^2$

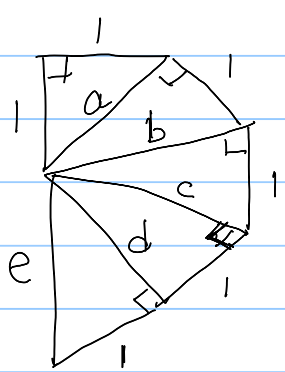
$5^2+y^2=\sqrt{29}^2$

$25+y^2=29$

$y^2=29-25$

$y^2=4$

$y=2$ (Q: Why not neg 2?
A: Can't have neg length!)



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

$1^2 + 1^2 = a^2$

$1 + 1 = a^2$

$2 = a^2$

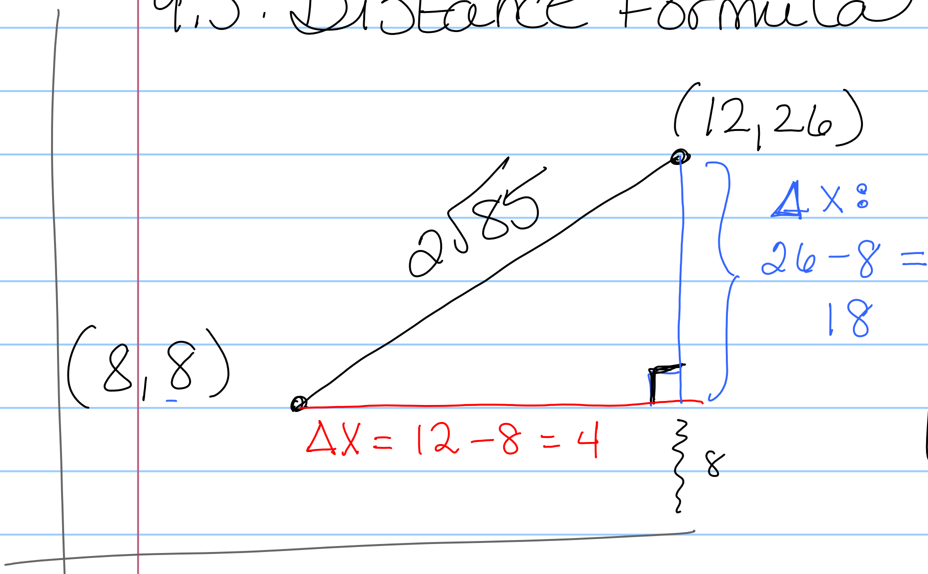
$\sqrt{2} = a$

$1^2 + \sqrt{2}^2 = b^2$

$\sqrt{3} = b$

find $e = \sqrt{6}$

9.5: Distance Formula



(12, 26)
(8, 8)

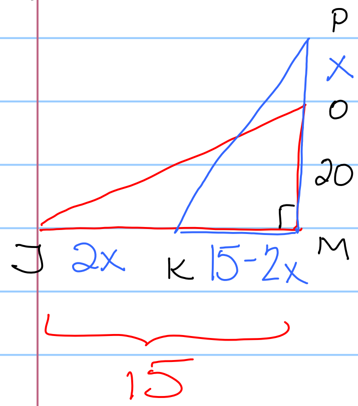
$$leg^2 + leg^2 = hyp^2$$
$$(4, 18, 2\sqrt{85})$$

Reduced Δ Principle: $2(2, 9, \sqrt{85})$

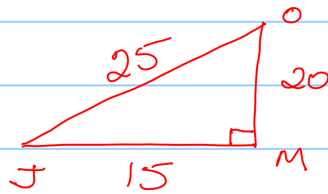
$$2^2 + 9^2 = ?$$
$$85 = hyp^2$$
$$\sqrt{85} = hyp$$

p390

$\boxed{9.4:27}$



Ladder = 25 ft = JO



$(JM, 20, 25)$

$5(\underline{\quad}, 4, 5)$

$?^2 + 16 = 25$

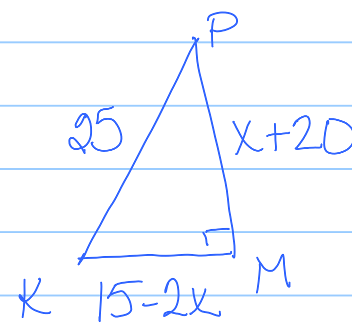
$? = 3$

$JM = 3(5) = 15$

Pyth Triples

$(3, 4, 5)$

$4(3\ 4\ 5) = 12, 16, 20$



$$PM^2 + KM^2 = PK^2$$

$$(x+20)^2 + (15-2x)^2 = 25^2$$

$$(x+20)(x+20) + (15-2x)(15-2x) = 625$$

$$x^2 + 20x + 20x + 400 + 225 - 30x - 30x + 4x^2 = 625$$

$$5x^2 - 20x + 625 = 625$$

$$5x^2 - 20x = 0$$

$$5x(x-4) = 0$$

then $x = 0$ or 4.

find KM: $15 - 2x$

$KM = \cancel{15 \text{ or}}\ \boxed{7 \text{ ft}}$