Note Title 2/15/2016

1d $(1, 1\frac{1}{3}, \_) \to (\frac{3}{3}, \frac{4}{3}, \_\_) \to \frac{1}{3}(3\ 4\ 5) \to 5/3$

5b $(6 \_ 8) \to 2(3\ \sqrt{7}\ 4) \to 2\sqrt{7}$ (8 is hyp; $leg^2 + leg^2 = hyp^2$; $16 - 9 = 7$)

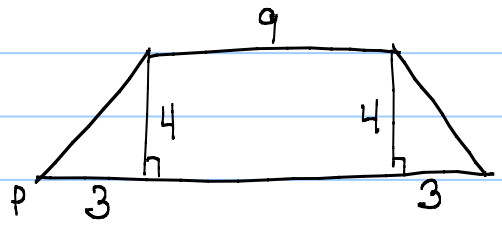
f $(15 \_ 20) \to 5(3\ \sqrt{7}\ 4) \to 5\sqrt{7}$

5d $(\_, 1.2, 1.3) \to .1(5, 12, 13) \to .5$ ($leg^2 + leg^2 = hyp^2$)

5i $(5\sqrt{7}, \_\_, 13\sqrt{7}) \to \sqrt{7}(5, 12, 13) \to 12\sqrt{7}$

4d $(\_ \underset{\frac{3}{2}}{|} \frac{1}{2}, |\frac{7}{10}) \to (\_\_ \frac{15}{10} \frac{17}{10}) \to \frac{1}{10}(8, 15, 17) \to \frac{8}{10}$ or $4/5$

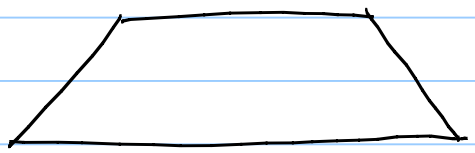
17



2 Δs + Rect

$2(\frac{1}{2})3 \cdot 4 + 4 \cdot 9$

$12 + 36 = 48$



9.a $(8\sqrt{5}, 16, \_\_) \to 8(\sqrt{5}, 2, \underline{3}) \to 24$

$5+4=9 \quad \sqrt{9}=3$

9b $(200 \_\_ 700) \to 100\ (2, \underline{3\sqrt{5}}, 7) \to 300\sqrt{5}$

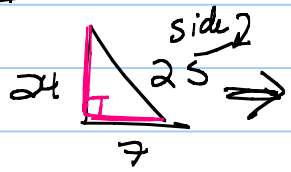
$4+x^2=49$

$x^2=45$

$x=\sqrt{9\sqrt{5}}$

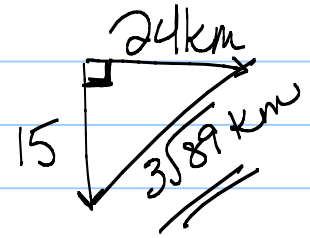
12 diag rhomb bis each other & $\perp$

diag 48 & 14 $\to$ 24 & 7



$\Rightarrow P=100$

13.



L: $\frac{16\ k}{hr} \cdot \frac{3\ hrs}{2} = 24\text{km}$

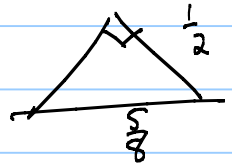
M: $\frac{10\ k}{hr} \cdot \frac{3\ hr}{2} = 15\text{km}$

$(15, 24, \_\_)$

$3(5, 8, \sqrt{89})$

$25+64=89$

15b.

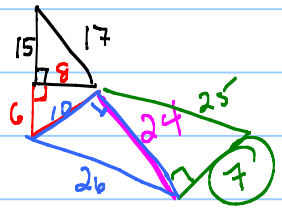


$\left(\frac{1}{2} \_\_ \frac{5}{8}\right) \to \left(\frac{4}{8} \_\_ \frac{5}{8}\right) \to \frac{1}{8}(4 \_\_ 5) \to \frac{3}{8}$

hyp

$25-16=9$

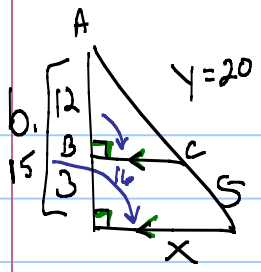
16a.



$(10\ \underline{24}\ 26)$

$2(5\ \underline{12}\ 13)$

16 b.

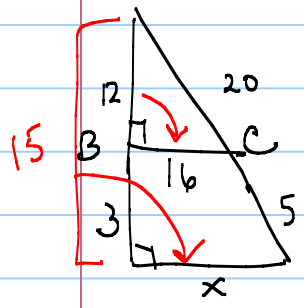


$y \rightarrow$ side splitter $\rightarrow \frac{12}{3} = \frac{y}{5}$ $\quad y = 20$

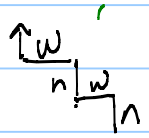
$x \rightarrow \sim \triangle s \rightarrow$

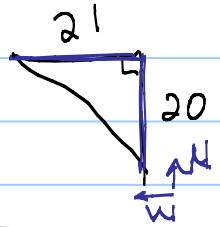
BC $\Rightarrow (12 \_ 20) \rightarrow 4(3\ 4\ 5) \rightarrow 16$ then $\frac{12}{16} = \frac{15}{x}$

$\frac{3}{4} = \frac{15}{x} \rightarrow x = 20$



(18)



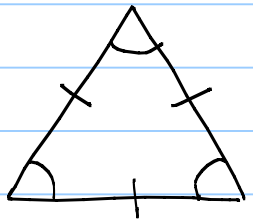


$20^2 + 21^2 =$

$400 + 441 = 841$

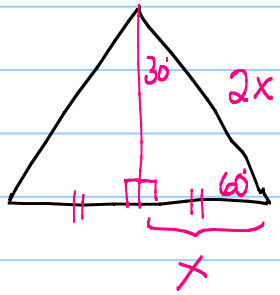
$\sqrt{841} = 29$ km

9.7 Special Rt $\triangle$s



Equilat $\rightarrow$ Equi$\angle$

What's the measure of an $\angle$ in an equilateral triangle? 60°!

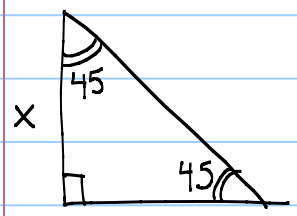


$x^2 + ?^2 = (2x)^2$

$?^2 = 4x^2 - x^2$

$? = \sqrt{3x^2} = \sqrt{3}\sqrt{x^2} = x\sqrt{3}$

In any	30°	60°	90°
sides are	x	$x\sqrt{3}$	2x



$(\triangle\triangle \Rightarrow \not\triangle\not\triangle)$

then by PythThm

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

$x^2 + x^2 = hyp^2$

$2x^2 = hyp^2$

$\sqrt{2x^2} = hyp$

$x\sqrt{2} = hyp$

In any $45^\circ\ 45^\circ\ 90^\circ$

$x\ \ x\ \ x\sqrt{2}$

PopQuizzes coming up:

1 question

Q: What are the 6 common families of rt $\triangle$s?

A:
1. (3, 4, 5)
2. (5, 12, 13)
3. (7, 24, 25)
4. (8, 15, 17)
5. $(30, 60, 90) \Leftrightarrow (x, x\sqrt{3}, 2x)$
6. $(45, 45, 90) \Leftrightarrow (x, x, x\sqrt{2})$

9,7

1a.

30	60	90
x	$x\sqrt{3}$	$2x$
7	$7\sqrt{3}$	14

if $2x = 14$

$x = 7$

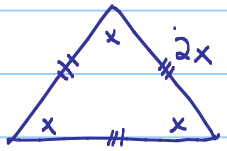
1b.

30	60	90
x	$x\sqrt{3}$	$2x$
10	$10\sqrt{3}$	20

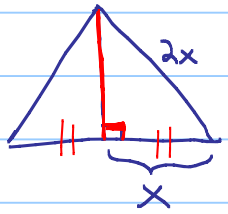
4a

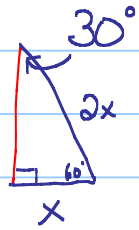
45	45	90
x	x	$x\sqrt{2}$
8		$8\sqrt{2}$

P7 9.7 Special Rt △s



$3x = 180$
$x = 60$

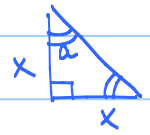




30	60	90
x	$x\sqrt{3}$	2x

$2x = 20$
$x = 10$

$leg^2 + leg^2 = hyp^2$
$x^2 + ?^2 = (2x)^2$
$?^2 = 4x^2 - x^2 = 3x^2$
$? = \sqrt{3}\sqrt{x^2} = x\sqrt{3}$



$a = 45°$

$leg^2 + leg^2 = hyp^2$
$x^2 + x^2 = hyp^2$
$2x^2 = hyp^2$
$\sqrt{2} \cdot \sqrt{x^2} = hyp$
$x\sqrt{2} = hyp$

45	45	90
x	x	$x\sqrt{2}$

Q: If hyp = 20 what's side opp 45°?

$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{20}{\sqrt{2}}$

$x = \frac{20}{\sqrt{2}}\frac{\sqrt{2}}{\sqrt{2}} = \frac{20\sqrt{2}}{2} = 10\sqrt{2}$

P7 #8

Future Pop Quizzes!

Q: What are the 6 common Families of Rt △s?

A:
1. (3, 4, 5)
2. (5, 12, 13)
3. (7, 24, 25)
4. (8, 15, 17)
5. $(30°, 60°, 90°) \Leftrightarrow (x, x\sqrt{3}, 2x)$ } backbone of trigonometry
6. $(45°, 45°, 90) \Leftrightarrow (x, x, x\sqrt{2})$ } backbone of trigonometry

9.7: 405/ 1-10, 12,

Chapter review, p 429, 1-16

1a

30	60	90
x	$x\sqrt{3}$	$2x$
7	$7\sqrt{3}$	14

1b

30	60	90
x	$x\sqrt{3}$	$2x$
10	$10\sqrt{3}$	20

1c

30	60	90
x	$x\sqrt{3}$	$2x$

1d

30	60	90
x	$x\sqrt{3}$	$2x$

1e

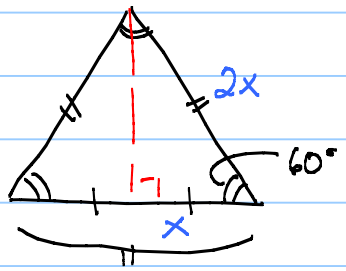
30	60	90
x	$x\sqrt{3}$	$2x$

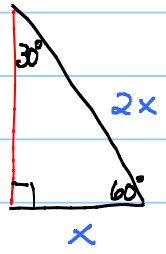
2a

30	60	90
x	$x\sqrt{3}$	$2x$
$2\sqrt{3}$	6	$4\sqrt{3}$

IF $\frac{x\sqrt{3}}{\sqrt{3}} = \frac{6}{\sqrt{3}}$, THEN $x = \frac{6}{\sqrt{3}}\frac{\sqrt{3}}{\sqrt{3}}$, $x = 2\sqrt{3}$

9.7: Special Families of Rt △s





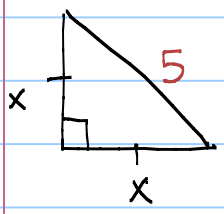
30	60	90
x	$x\sqrt{3}$	2x

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

$x^2 + ?^2 = (2x)^2$

$?^2 = 4x^2 - x^2$ or $3x^2$

$? = \sqrt{3}\sqrt{x^2}$ or $x\sqrt{3}$



45	45	90
x	x	$x\sqrt{2}$
$\frac{5\sqrt{2}}{2}$	$\frac{5\sqrt{2}}{2}$	5

then $\frac{x\sqrt{2}}{\sqrt{2}} = \frac{5}{\sqrt{2}}\frac{\sqrt{2}}{\sqrt{2}}$

$x = \frac{5}{2}\sqrt{2}$

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

$x^2 + x^2 = h^2$

$2x^2 = h^2$

$\sqrt{2x^2} = h$

$x\sqrt{2} = h$

9.7

1 a

30	60	90	
x	$x\sqrt{3}$	2x	$2x = 14$
7	$7\sqrt{3}$	14	

b.

30	60	90
x	$x\sqrt{3}$	2x
10	$10\sqrt{3}$	20

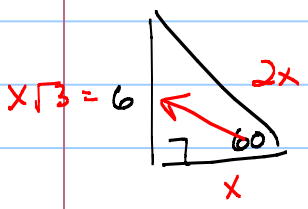
c

d

e

2a.

30	60	90	
x	$x\sqrt{3}$	2x	then $\frac{6}{\sqrt{3}} = \frac{x\sqrt{3}}{\sqrt{3}}$, $x = \frac{6}{\sqrt{3}}\frac{\sqrt{3}}{\sqrt{3}}$ or $\frac{6}{3}\sqrt{3}$ or $2\sqrt{3}$
$2\sqrt{3}$	6	$4\sqrt{3}$	



9.7: 405/ 1-10, 12,

Chapter review, p 429, 1-16