Name: Key Date:_____ Hour:_____

Geometry Chapter 7.4 Notes and Problems #s 1-20

In this section you will be discovering similarity proportions within right triangles.

But first, we must understand the **GEOMETRIC MEAN**...

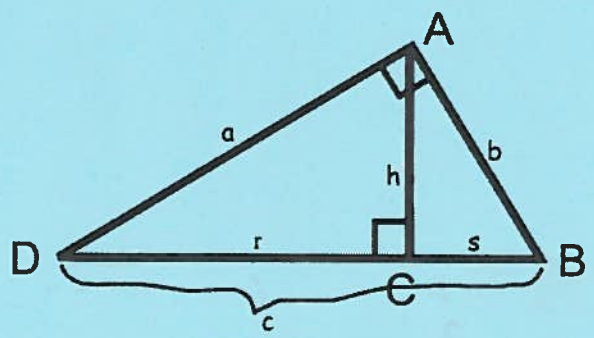
The number x that allows this proportion to be true: $\frac{a}{x} = \frac{x}{b}$.

Cross multiplying shows us that $x^2 =$ ab. Therefore, $x = \sqrt{ab}$.

Problems 1-8:

① $x^2 = 36$, $\boxed{x = 6}$	② $x^2 = 40$, $x = \sqrt{40}$ (2·2·2·5) $\boxed{2\sqrt{10}}$	③ $x^2 = 48$, $x = \sqrt{48}$ (2·2·2·2·3) $\boxed{4\sqrt{3}}$	④ $x^2 = 144$, $\boxed{x = 12}$
⑤ $x^2 = 392$ (2, 196, 14·14) $\boxed{14\sqrt{2}}$	⑥ $x^2 = 625$, $\boxed{x = 25}$	⑦ $x^2 = 216$, $\boxed{x = 6\sqrt{6}}$	⑧ $x^2 = 63$, $\boxed{x = 3\sqrt{7}}$

For problem #s 9-14, you will need to understand this diagram and chart.



	small triangle	medium triangle	large triangle
small leg	s	h	b
medium leg	h	r	a
hypotenuse	b	a	c

Algebra **Refer to the figure to complete each proportion.**

9. $\frac{r}{h} = \frac{h}{\square}$ s

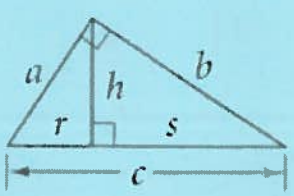
10. $\frac{c}{a} = \frac{a}{\square}$ r

11. $\frac{\square}{b} = \frac{b}{s}$ c

12. $\frac{r}{\square} = \frac{\square}{c}$ a a

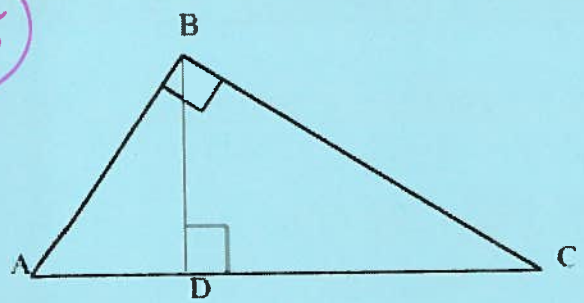
13. $\frac{r}{h} = \frac{\square}{s}$ h

14. $\frac{s}{b} = \frac{\square}{c}$ b



Practice Right Triangle Similarity Charts for problem #s 15-20:

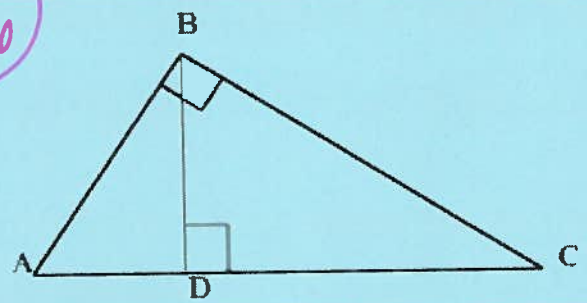
15



1.)	ST △	MT △	LT △
SL	4	6	
ML	6	x	
H			x+4

$\frac{4}{6} = \frac{6}{x}$ $4x = 36$ $\boxed{x=9}$

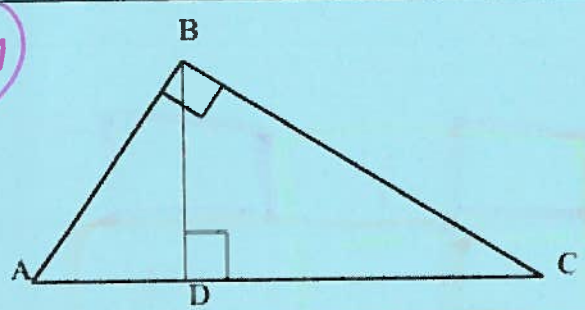
16



2.)	ST △	MT △	LT △
SL	10	x	
ML	x	40	
H			50

$x^2 = 400$ $\frac{10}{x} = \frac{x}{40}$ $\boxed{x=20}$

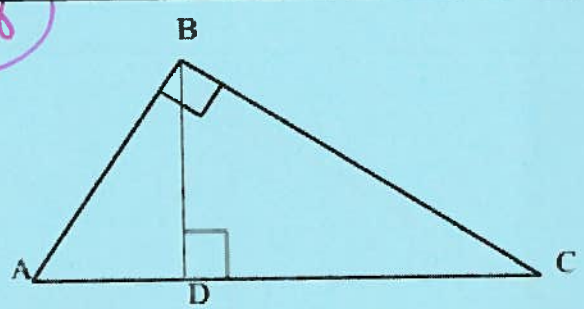
17



3.)	ST △	MT △	LT △
SL	4		x
ML		21	
H	x		25

$\frac{4}{x} = \frac{x}{25}$ $x^2 = 100$ $\boxed{x=10}$

18



4.)	ST △	MT △	LT △
SL	3		
ML		9	x
H		x	12

$x^2 = 108$ $\frac{9}{x} = \frac{x}{12}$

$x = \sqrt{108}$

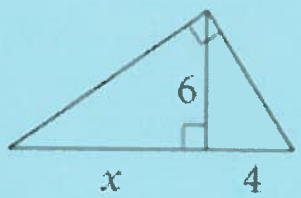
2 54 2 27 3 3 3

$\boxed{x = 6\sqrt{3}}$

Problem #s 15-20.

Algebra **Solve for x.**

15.



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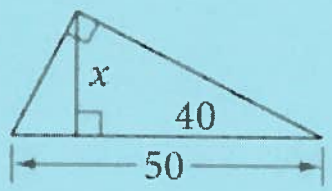

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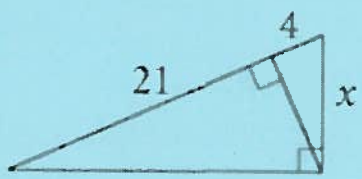

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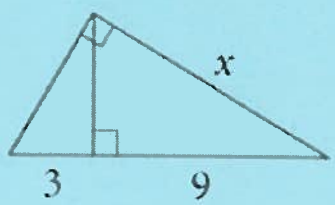

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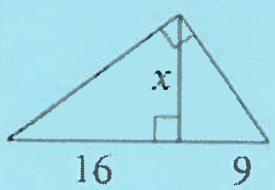

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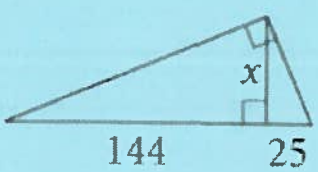

19.

	SΔ	MΔ	LΔ
S	9	x	
M	x	16	
L			25

$\frac{9}{x} = \frac{x}{16}$

$x^2 = 144$

$\boxed{x = 12}$

20

	SΔ	MΔ	LΔ
S	25	x	
M	x	144	
L			169

$\frac{25}{x} = \frac{x}{144}$

$x^2 = 3600$

$\boxed{x = 60}$