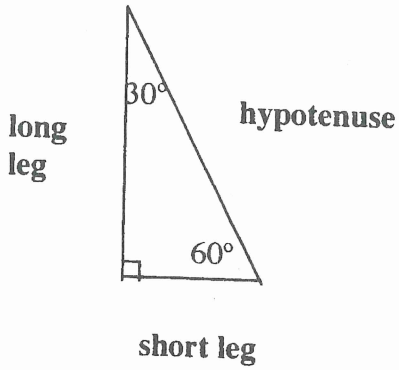


Key

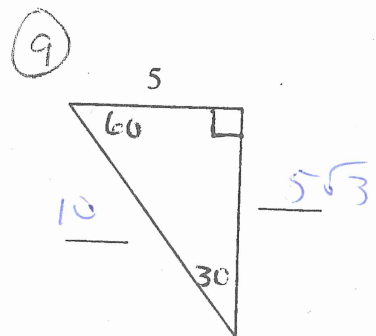
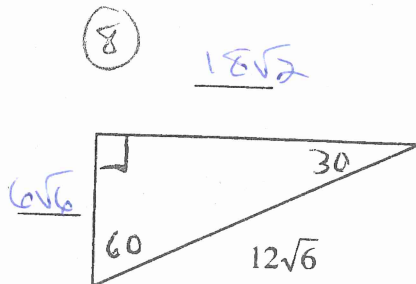
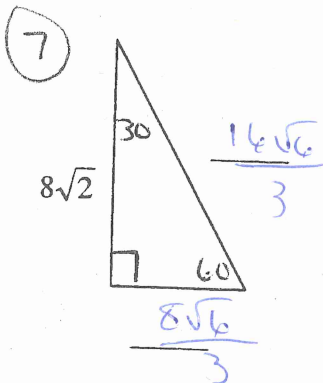
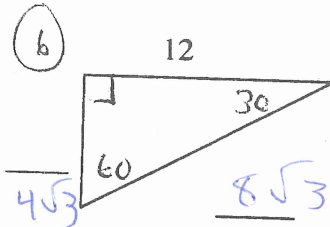
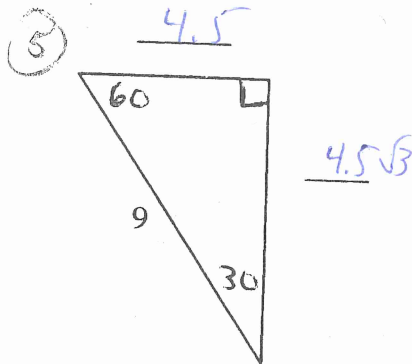
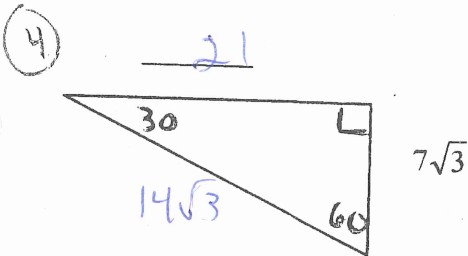
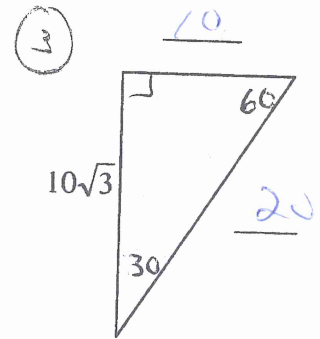
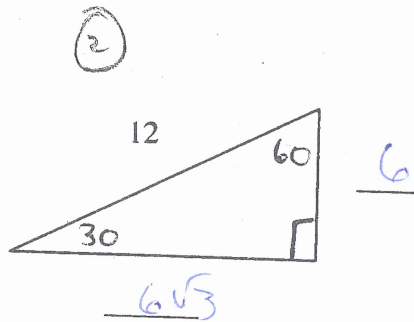
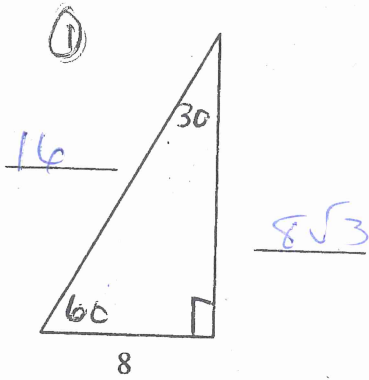
WORKSHEET #1: 30-60-90 TRIANGLES



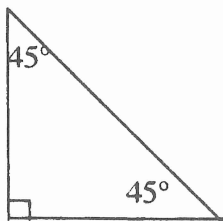
Hypotenuse = twice the short leg

Long leg = short leg * $\sqrt{3}$

Find the missing sides of the triangles. Each triangle measures 30-60-90°. Leave answers in simplified radical form.



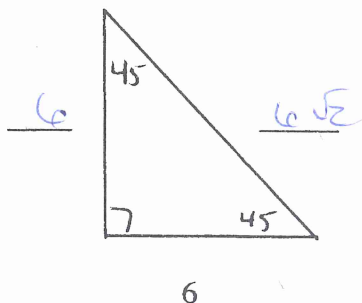
WORKSHEET #2: 45-45-90° TRIANGLES



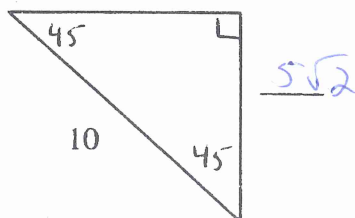
$$\text{Hypotenuse} = \text{leg} * \sqrt{2}$$

Find the missing sides of the triangles. Each triangle measures 45-45-90°. Leave answers in simplified radical form.

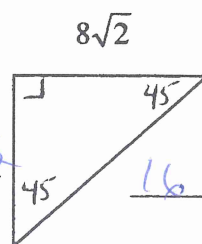
(10)



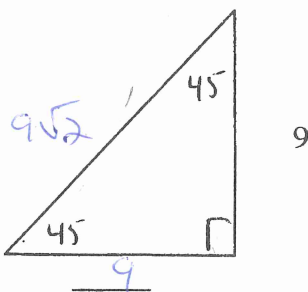
(11)



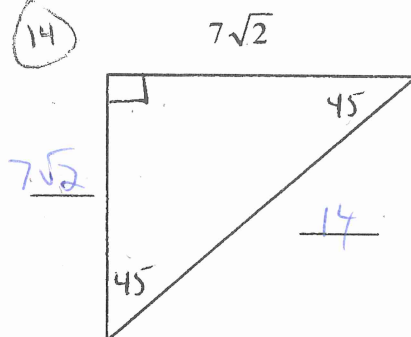
(12)



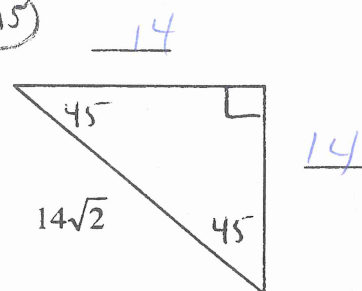
(13)



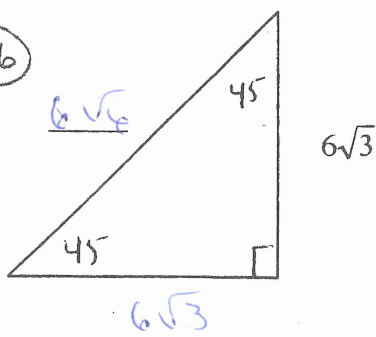
(14)



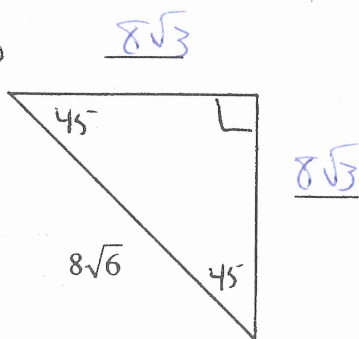
(15)



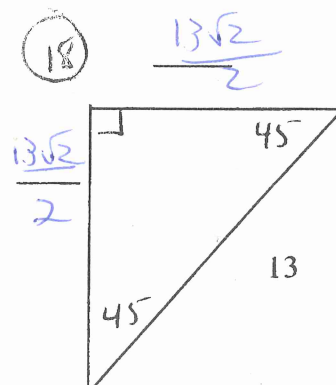
(16)



(17)



(18)



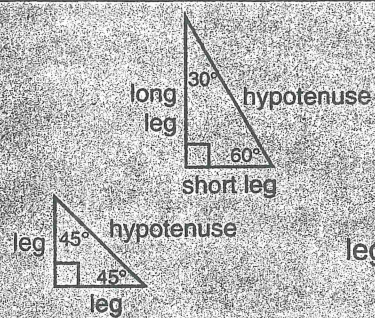
(8)

$\sqrt{3} - 2x$

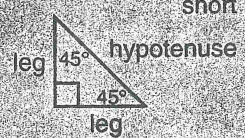
$45-45-90$
 $x-x-x\sqrt{2}$

Key

Special Right Triangles

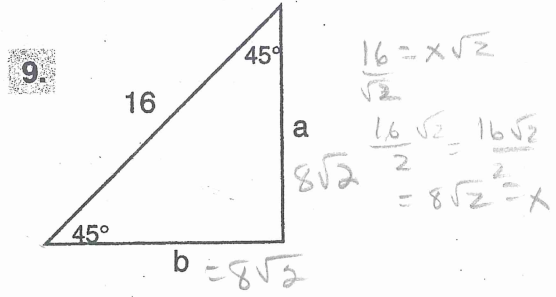
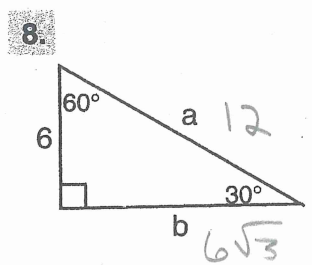
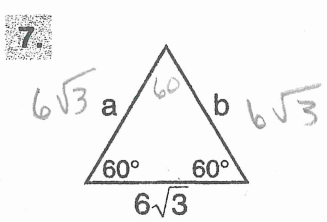
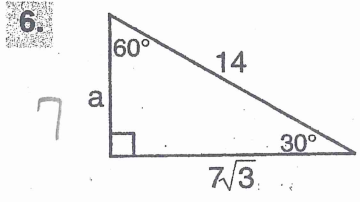
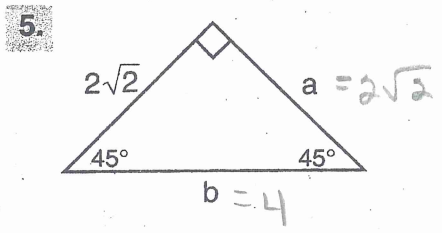
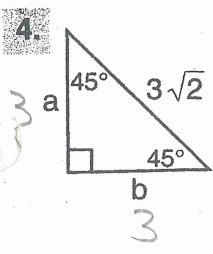
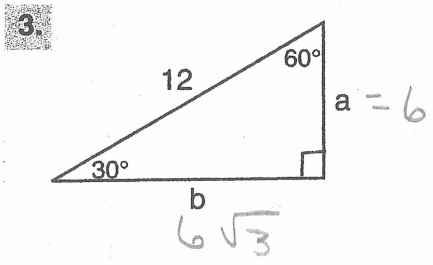
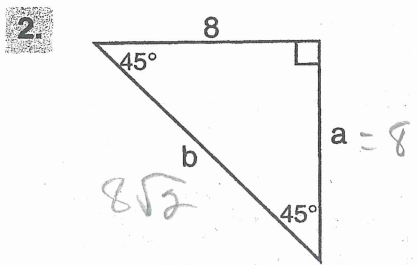
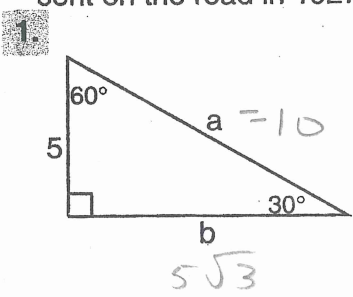


short leg = $\frac{1}{2}$ hypotenuse
long leg = $\sqrt{3}$ (short leg)
hypotenuse = 2 (short leg)



legs are equal
hypotenuse = $\sqrt{2}$ (leg)

Use the 30-60-90 and 45-45-90 triangle relationships to solve for the missing sides. Use the answers to reveal the name of the team that Abraham M. Saperstein established and sent on the road in 1927.



8	$2\sqrt{2}$	3	6	$5\sqrt{3}$	4	7	12	$8\sqrt{2}$	10	$6\sqrt{3}$
A	B	E	G	H	L	M	O	R	S	T

I H E H A R L E M

G L O B E T R O T T E R S

3a 5b 8a 5a 4a 7a 2b 8a 7b 3b 4b 9a 1a

3

$$30-60-90$$

$$x \quad x\sqrt{3} \quad 2x$$

$$45-45-90$$

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

Name _____

Tricky Triangles

Use your knowledge of special right triangle ratios to find the missing measures below.

	m∠A	m∠B	a	b	c
a.	30	60	8	$8\sqrt{3}$	16
b.	30	60	12	$12\sqrt{3}$	24
c.	30	60	4	$4\sqrt{3}$	8
d.	45	45	$10\sqrt{2}$	$10\sqrt{2}$	20
e.	45	45	$54\sqrt{2}$	$54\sqrt{2}$	108
f.	30	60	2.7	$2.7\sqrt{3}$	5.4
g.	45	45	8	8	$8\sqrt{2}$
h.	45	45	12	12	$12\sqrt{2}$
i.	30	60	6	$6\sqrt{3}$	12
j.	30	60	10	$10\sqrt{3}$	20
k.	30	60	$4\sqrt{3}$	12	$8\sqrt{3}$
l.	45	45	18	18	$18\sqrt{2}$

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

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

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

$$108 = x\sqrt{2}$$

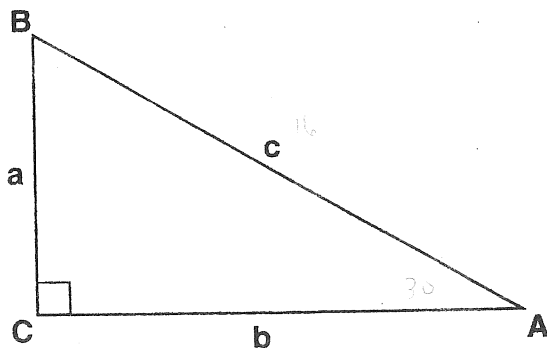
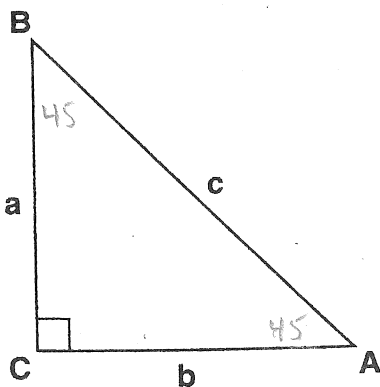
$$\frac{108\sqrt{2}}{2}$$

$$2x = 5.4$$

$$x = 2.7$$

$$2x = 8\sqrt{3}$$

$$x = 4\sqrt{3}$$

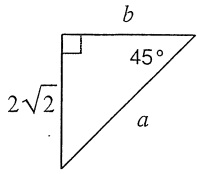


4

Special Right Triangles

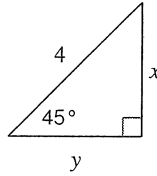
Find the missing side lengths. Leave your answers as radicals in simplest form.

1)



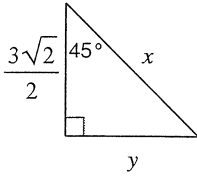
$$a = 4, b = 2\sqrt{2}$$

2)



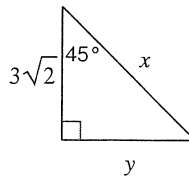
$$x = 2\sqrt{2}, y = 2\sqrt{2}$$

3)



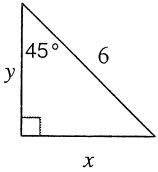
$$x = 3, y = \frac{3\sqrt{2}}{2}$$

4)



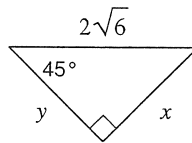
$$x = 6, y = 3\sqrt{2}$$

5)



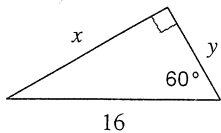
$$x = 3\sqrt{2}, y = 3\sqrt{2}$$

6)



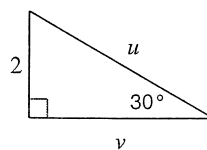
$$x = 2\sqrt{3}, y = 2\sqrt{3}$$

7)



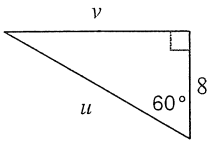
$$x = 8\sqrt{3}, y = 8$$

8)



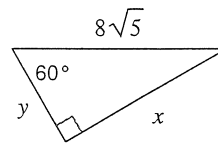
$$u = 4, v = 2\sqrt{3}$$

9)



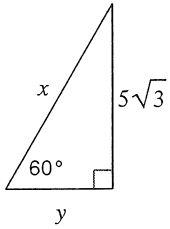
$$u = 16, v = 8\sqrt{3}$$

10)



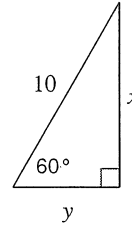
$$x = 4\sqrt{15}, y = 4\sqrt{5}$$

11)



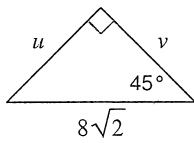
$$x = 10, y = 5$$

12)



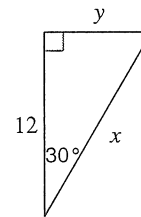
$$x = 5\sqrt{3}, y = 5$$

13)



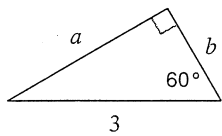
$$u = 8, v = 8$$

14)



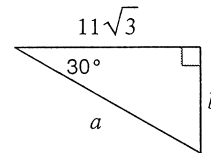
$$x = 8\sqrt{3}, y = 4\sqrt{3}$$

15)



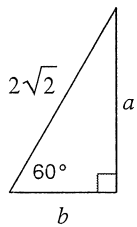
$$a = \frac{3\sqrt{3}}{2}, b = \frac{3}{2}$$

16)



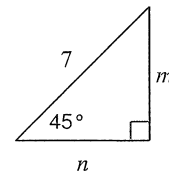
$$a = 22, b = 11$$

17)



$$a = \sqrt{6}, b = \sqrt{2}$$

18)

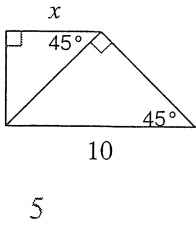


$$m = \frac{7\sqrt{2}}{2}, n = \frac{7\sqrt{2}}{2}$$

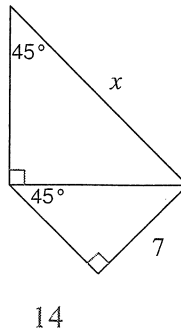
Multi-Step Special Right Triangles

Find the missing side lengths. Leave your answers as radicals in simplest form.

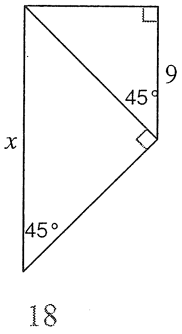
1)



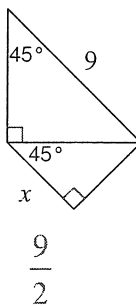
2)



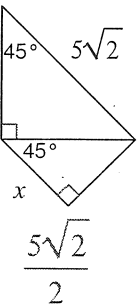
3)



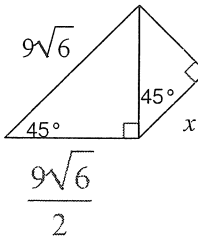
4)



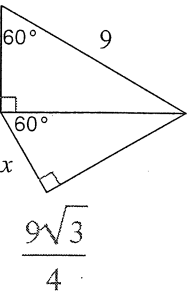
5)



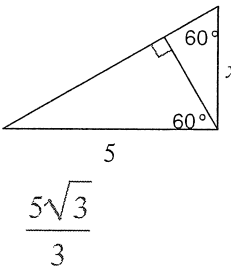
6)



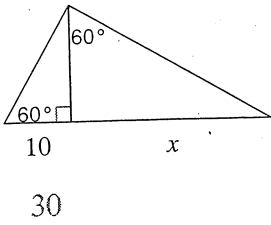
7)



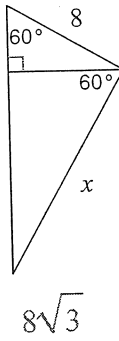
8)



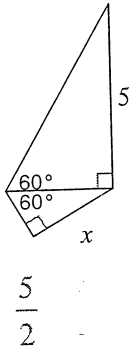
9)



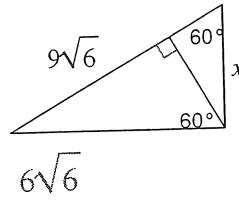
10)



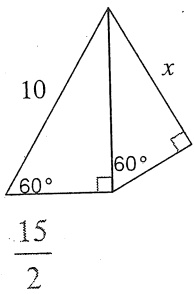
11)



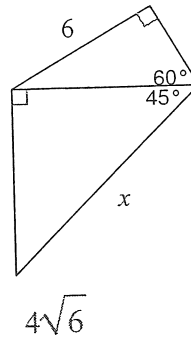
12)



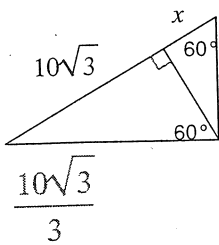
13)



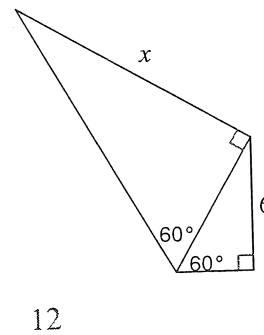
14)



15)



16)



5.4 Quiz Version A
 # 1-9 2 pts. per answer
 # 10-13 4 pts each
 TOTAL PTS: 56

Show all work!

Name: _____
 Period: _____
 Date: _____

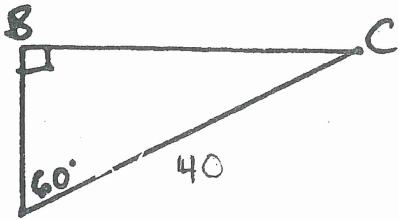
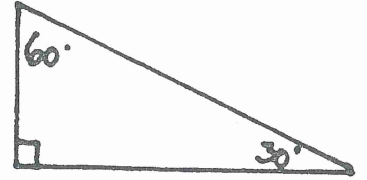
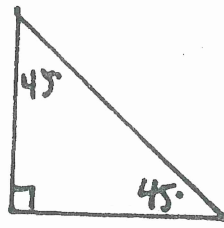
Key

Find the missing sides in the triangles. Answer in simplest radical form.

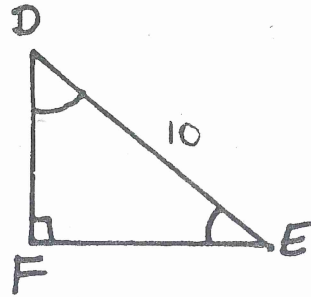
Use the "picture formulas":

write your formulas here for reference →

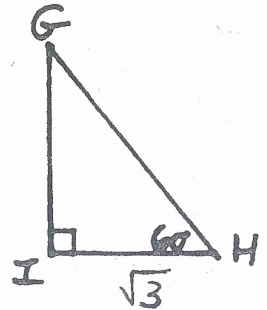
I will give them to you in exchange for 4 points (2 pts each).



2.

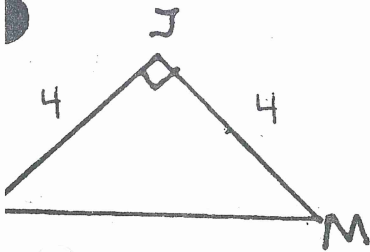


3.

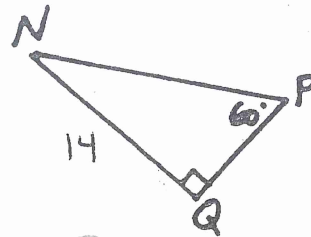


$\overline{AB} = 20$ $\overline{BC} = 20\sqrt{3}$

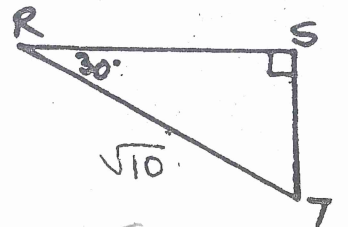
$\overline{DF} = 5\sqrt{2}$ $\overline{FE} = 5\sqrt{2}$ $\overline{IG} = 3$ $\overline{GH} = 2\sqrt{3}$



5.



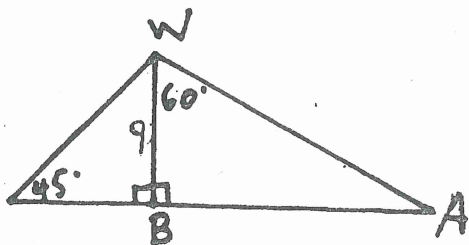
6.



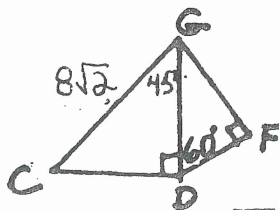
$\overline{KM} = 4\sqrt{2}$

$\overline{NP} = \frac{28\sqrt{3}}{3}$ $\overline{PQ} = \frac{14\sqrt{3}}{3}$

$\overline{RS} = \frac{\sqrt{30}}{2}$ $\overline{ST} = \frac{\sqrt{10}}{2}$

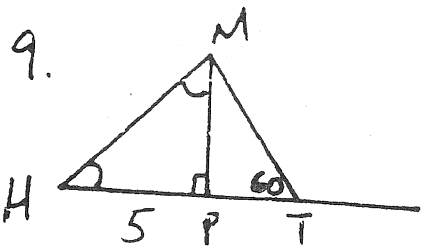


8.



$\overline{WB} = 9\sqrt{2}$
 $\overline{BA} = 9\sqrt{3}$
 $\overline{WA} = 18$

$\overline{CD} = 18$
 $\overline{DF} = 4$
 $\overline{GF} = 4\sqrt{3}$

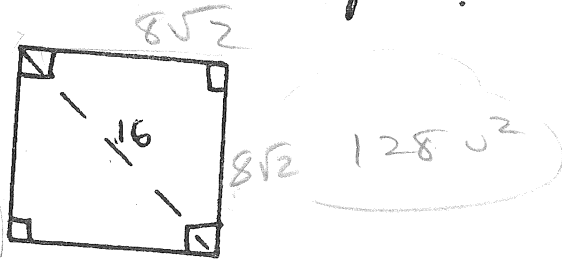


$$9) \overline{MH} = \frac{5\sqrt{2}}{3}$$

$$\overline{PT} = \frac{5\sqrt{3}}{3}$$

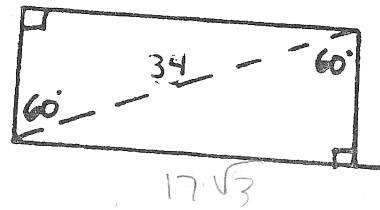
$$\overline{MT} = \frac{10\sqrt{3}}{3}$$

3: Show work + circle answers! Write your answers in simplest radical form.
Find the area of the square.



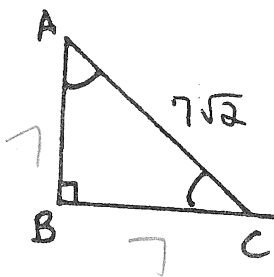
$$8\sqrt{2} \cdot 8\sqrt{2} = 64 \cdot 2$$

11. Find the area of the rectangle.



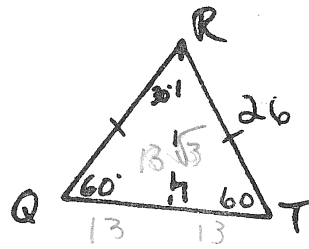
$$17 \cdot 17\sqrt{3} = 289\sqrt{3}$$

Find the area of $\triangle ABC$.



$$\frac{1}{2} \cdot 7 \cdot 7 = \frac{49}{2} = 24.5$$

13. Find the area of $\triangle QRT$.



$$169\sqrt{3}$$

Reflection Questions:

1) How do you think you did?

2) What did you do to study?

3) What would you do differently next time?