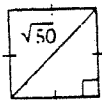


Geo CH)
 (Sect 8.4) - more Practice Problems of Special Right Δ s KEY
 ignore

1. Find the perimeter of each polygon.

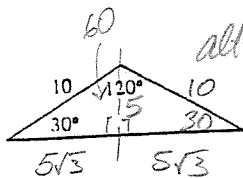
a.



diag = $\sqrt{50}$
 $x\sqrt{2} = \sqrt{50}$
 $x = \sqrt{25}$
 $x = 5$

Perim = 20

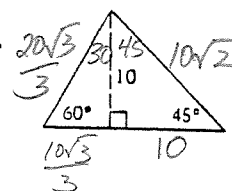
b.



altitude = 5

$P = 20 + 10\sqrt{3}$

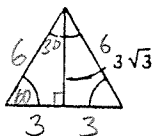
c.



$x\sqrt{3} = 10$
 $x = \frac{10}{\sqrt{3}}$
 $x = \frac{10\sqrt{3}}{3}$

$P = 10 + 10\sqrt{2} + 10\sqrt{3}$

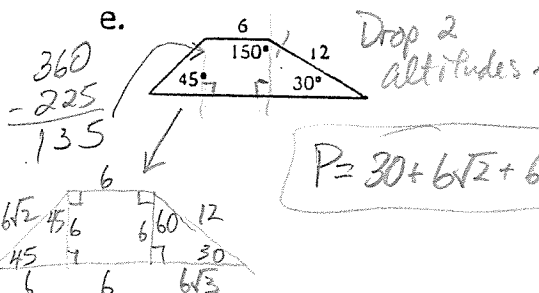
d.



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

Per = 18

e.

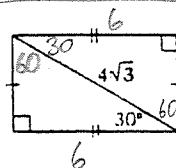


Drop 2 altitudes.

$360 - 225 = 135$

$P = 30 + 6\sqrt{2} + 6\sqrt{3}$

f.

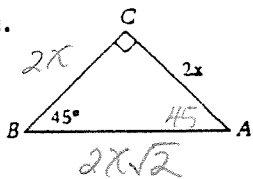


$2x = 4\sqrt{3}$
 $x = 2\sqrt{3}$

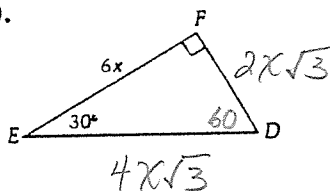
$P = 12 + 4\sqrt{3}$

2. Find the length of the other two sides of each triangle in terms of x.

a.

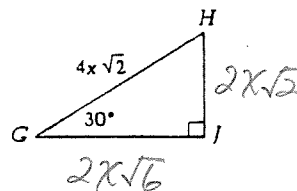


b.



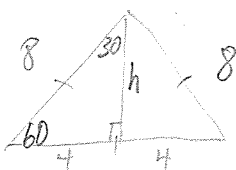
$y\sqrt{3} = 6x$
 $y = \frac{6x}{\sqrt{3}}$
 $y = 2x\sqrt{3}$

c.



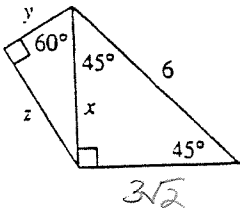
$2x\sqrt{2}\sqrt{3}$

3. Find the length of the altitude of an equilateral triangle with perimeter 24.



altitude = $4\sqrt{3}$

4. Find lengths x, y and z.



$x\sqrt{2} = 6$
 $x = \frac{6}{\sqrt{2}}$

$x = 3\sqrt{2}$

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

$z = \frac{3\sqrt{2} \cdot \sqrt{3}}{2}$

$z = \frac{3\sqrt{6}}{2}$

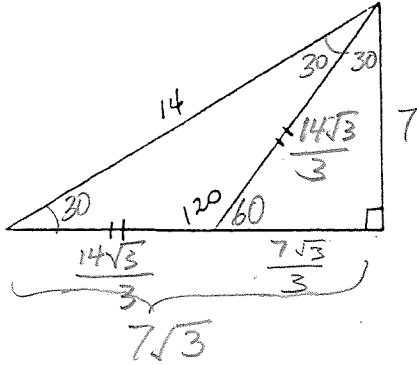
Find the missing lengths.

5.

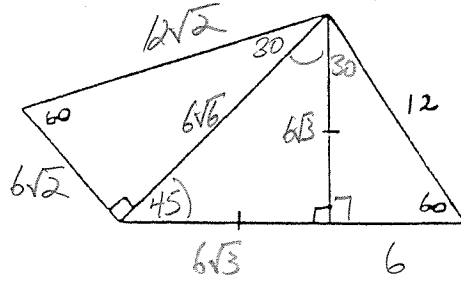
$$x\sqrt{3} = 7$$

$$x = \frac{7 \cdot \sqrt{3}}{\sqrt{3}}$$

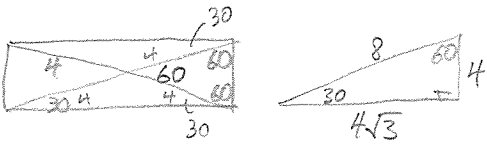
$$x = \frac{7\sqrt{3}}{3}$$



6.

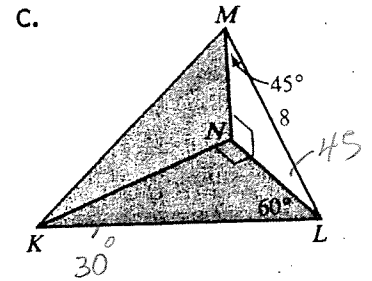
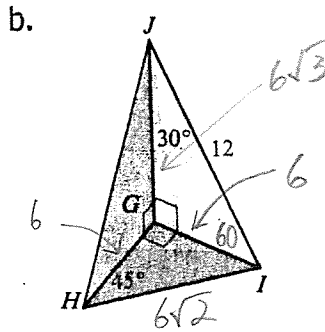
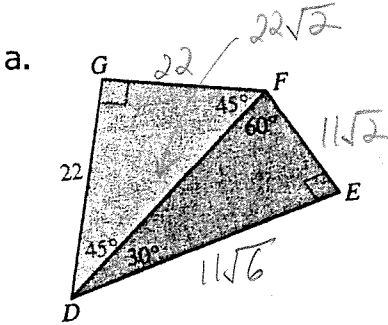


7. The diagonals of a rectangle are 8 units long and intersect at a 60° angle. Find the dimensions of the rectangle.



$4\sqrt{3}$ by 4

8. Find the lengths of as many segments as possible.



$$GI = 6 \quad HJ = 12$$

$$JG = 6\sqrt{3}$$

$$HG = 6$$

$$HI = 6\sqrt{2}$$

$$MN = 4\sqrt{2} \quad KM = 8\sqrt{2}$$

$$NL = 4\sqrt{2}$$

$$KN = 4\sqrt{6}$$

$$KL = 8\sqrt{2}$$

9. In quadrilateral QRST, $m\angle R = 60$, $m\angle T = 90$, $QR = RS$, $ST = 8$, and $TQ = 8$.

a. How long is the longer diagonal of the quadrilateral?

$4\sqrt{2} + 4\sqrt{6}$

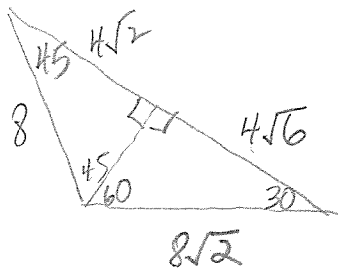
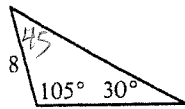
b. Find the ratio of RT to QS.

$(4\sqrt{2} + 4\sqrt{6})$ to $8\sqrt{2}$

$(\sqrt{2} + \sqrt{6})$ to $2\sqrt{2} \rightarrow$

$(1 + \sqrt{3}) : 2$

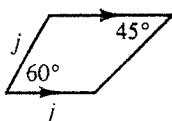
10. Find the perimeter of the triangle.



$$P = 8 + 12\sqrt{2} + 4\sqrt{6}$$

$$\frac{180}{135} = \frac{45}{45}$$

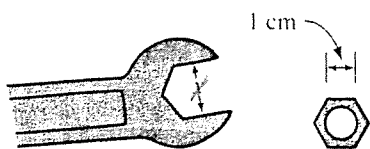
11. Find the length of the median of the trapezoid in terms of j .



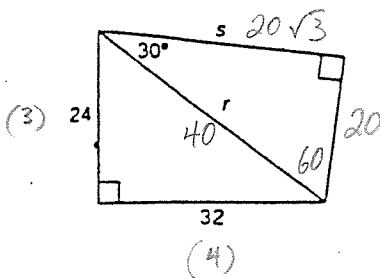
$$\frac{3j + j\sqrt{3}}{4}$$

12. If the wrench just fits the hexagonal nut, what is the value of x ?

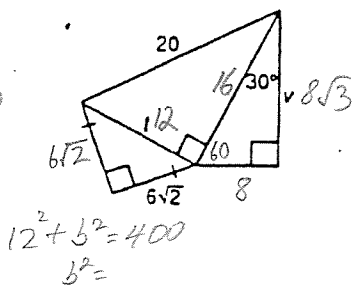
$$\sqrt{3}$$



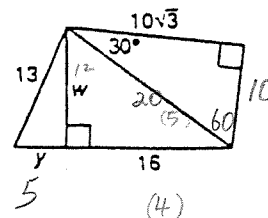
13. $r = ?$ $s = ?$



14. $t = ?$ $v = ?$



15. * $w = ?$ $y = ?$

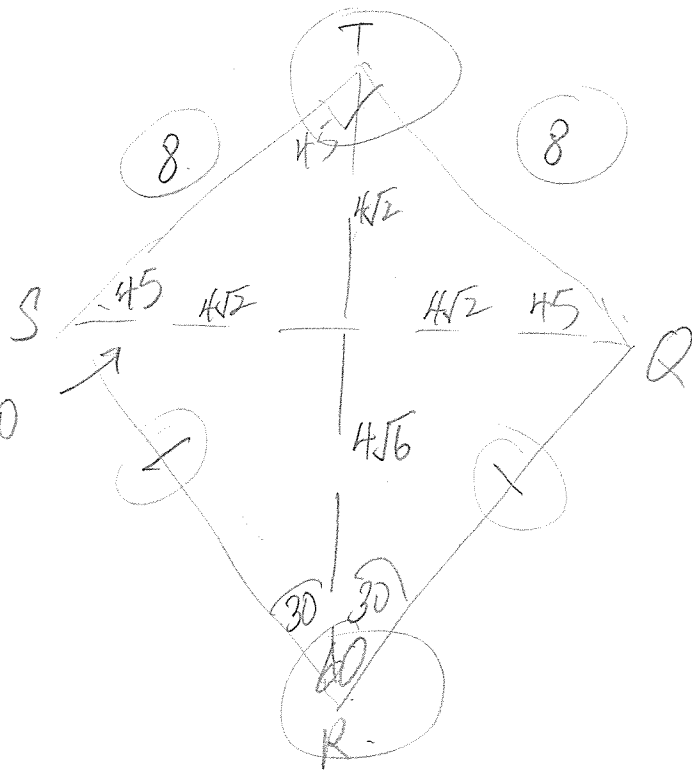


$$y^2 + 12^2 = 13^2$$

$$y^2 = 25$$

$$y = 5$$

9



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

$$x = \frac{8}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$x = 4\sqrt{2}$$

from

$$\begin{array}{r} 360 \\ - 240 \\ \hline 120 \end{array}$$

$\triangle STR \cong \triangle QTR$ (SAS)

So $\frac{1}{2}m\angle T = 45$

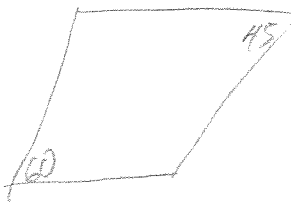
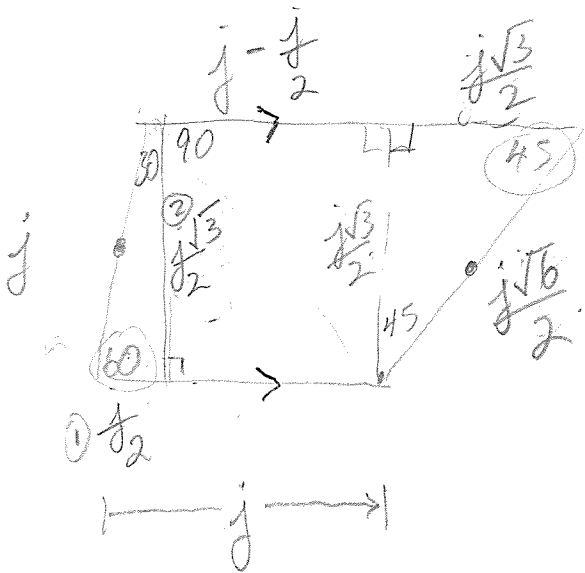
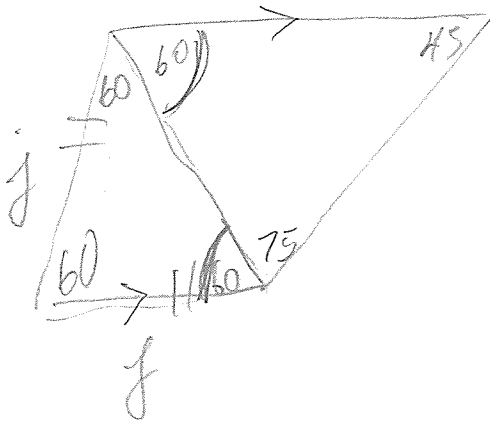
$\frac{1}{2}m\angle R = 30$

b) RT to QS Textans: $(1 + \sqrt{3}) : 2$

$(4\sqrt{2} + 4\sqrt{6}) : 8\sqrt{2}$

$4(\sqrt{2} + \sqrt{6}) : 4(2\sqrt{2})$

11



$$\frac{1}{2} \left(j + j - \frac{j}{2} + \frac{j\sqrt{3}}{2} \right)$$

$$\frac{1}{2} \left(2j - \frac{j}{2} + \frac{j\sqrt{3}}{2} \right)$$

$$\frac{1}{2} \left(\frac{4}{2}j - \frac{j}{2} + \frac{j\sqrt{3}}{2} \right)$$

$$\frac{1}{2} \left(\frac{3j}{2} + \frac{j\sqrt{3}}{2} \right)$$

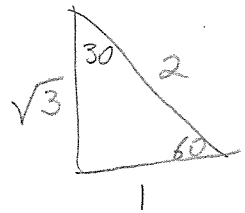
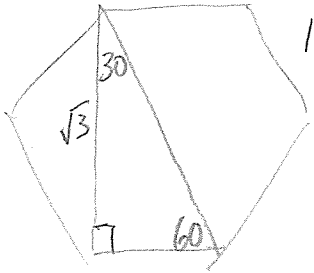
$$\frac{3j}{4} + \frac{j\sqrt{3}}{4}$$

Answer ✓
Correct!

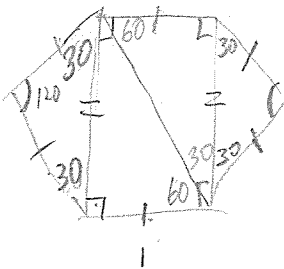
12

$$\frac{(6-2)180}{6} = 120^\circ$$

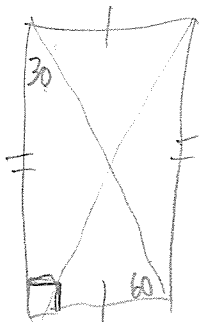
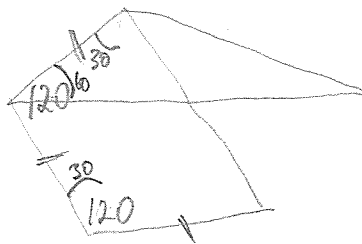
Ans: $\sqrt{3}$



Proof of 30-60-90 Δ



$$\frac{360}{240} = 120$$



(Short)

