Write the equation of the perpendicular bisector of segment AB given A(-2, 4) and B(2, 5)
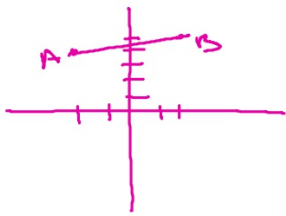
midpt $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

Slope AB $= \frac{y_2-y_1}{x_2-x_1}$

$\left(-\frac{2+2}{2}, \frac{4+5}{2}\right)$

$= \frac{5-4}{2-(-2)} = \frac{1}{4}$

$\left(0, \frac{9}{2}\right) = (0, 4.5)$

$m = -4$ $(0, 4.5)$

$y - y_1 = m(x-x_1)$

$y - 4.5 = -4(x-0)$

$y - 4.5 = -4x$

$y = -4x + 4.5$

List the angles of triangle RST in order from smallest to biggest if
R(-3, 1), S(2, -1) and T(5, 4)

R S
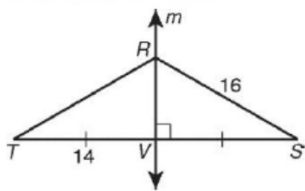$\sqrt{(-3-2)^2+(1+1)^2}$

$\sqrt{(-5)^2+(2)^2}$

$\sqrt{29}$

S T
$\sqrt{(5-2)^2+(4+1)^2}$

$\sqrt{(3)^2+(5)^2}$

$\sqrt{34}$

R T
$\sqrt{(5+3)^2+(4-1)^2}$

$\sqrt{(8)^2+(3)^2}$

$\sqrt{73}$

$\angle T, \angle R, \angle S$

Practice:

Find each measure.

1. $RT =$ __16__

2. $AB =$ __5__

3. $HJ =$ __7__

3(2)+1

$HK = HJ$
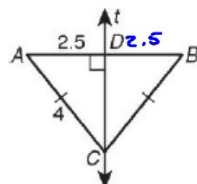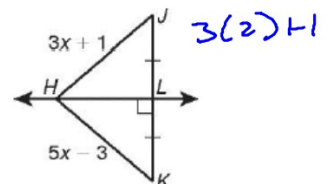
$5x-3 = 3x+1$

$2x-3 = 1$

$2x = 4$

$X = 2$
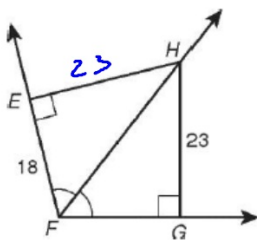
4. $EH =$ __23__
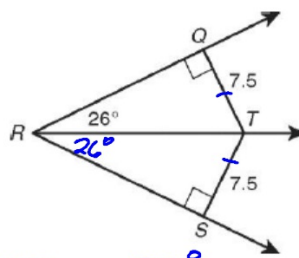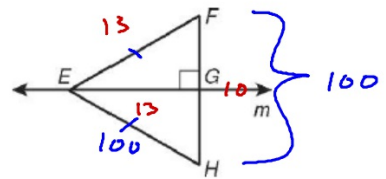
5. $m\angle QRS =$ __52°__
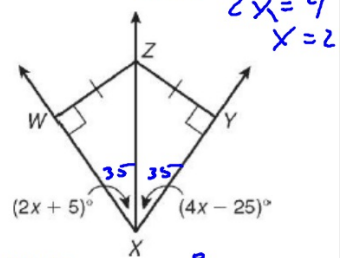
6. $m\angle WXZ =$ __70°__

$2x+5 = 4x-25$

$2x = 30$

$X = 15$

$2(15)+5$

35

Use the figure for #1-2.

1. Given that line *m* is the perpendicular bisector of

   $\overline{FH}$ and $EH = 100$, find *EF*. _____ 100

2. Given that $EF = 13$, $FH = 10$, and $EH = 13$, find *GH*. _____ 5
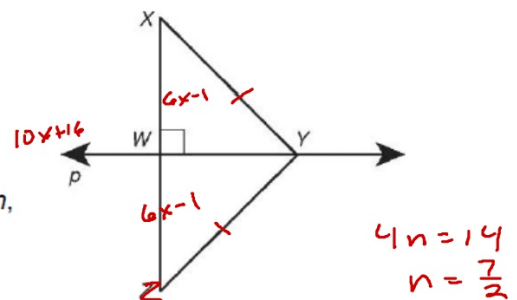
Use the figure for #3-6.

3. Given that line *p* is the perpendicular bisector of

   $\overline{XZ}$ and $XY = 15.5$, find *ZY*. _____ 15.5

4. Given that $XZ = 38$, $YX = 27$, and $YZ = 27$,

   find *ZW*. _____ 19

5. Given that line *p* is the perpendicular bisector of $\overline{XZ}$; $XY = 4n$,

   and $YZ = 14$, find *n*. _____ $\frac{7}{2} = 3.5$

6. Given that $XY = ZY$, $WX = 6x - 1$, and $XZ = 10x + 16$, find *ZW*. _____ 53

$4n = 14$
$n = \frac{7}{2}$

$6x-1 + 6x-1 = 10x + 16$
$12x - 2 = 10x + 16$
$2x - 2 = 16$
$2x = 18$
$x = 9$

Figure for #1-2 labels: 13, F, E, G, 10, m, 13, 100, H, 100

Figure for #3-6 labels: X, 6x-1, 10x+16, W, p, Y, 6x-1, Z

Use the figure for Exercises #7-8.

7. Given that $\overline{JL}$ bisects $\angle KJM$ and $KL = 42$, find ML. _____42_____

8. Given that $KL = 4$ and $ML = 4$ and $m\angle MJL = 40°$, find

   $m\angle KJL$. _____$40°$_____

(Figure: K, J, L, M with markings 42, ~20, 40°)
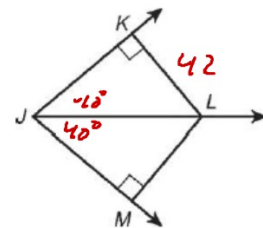
Use the figure for Exercises #9-12.

9. Given that $FG = HG$ and $m\angle FEH = 56°$, find
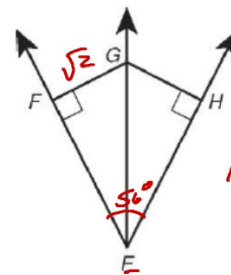
   $m\angle GEH$. _____$28°$_____

10. Given that $\overline{EG}$ bisects $\angle FEH$ and $GF = \sqrt{2}$, find GH.

   _____$\sqrt{2}$_____

11. Given that $\angle FEG \cong \angle GEH$, $FG = 10z - 30$, and

   $HG = 7z + 6$, find FG. _____90_____

12. Given that $GF = GH$, $m\angle GEF = 8a°$, and $m\angle GEH = 24°$, find a. _____3_____

(Figure: F, G, H, E with markings $\sqrt{2}$, 56°)

$10z - 30 = 7z + 6$

$3z = 36$

$z = 12$

$8a = 24$

$a = 3$

Solve each proportion

$$\frac{8}{b+10} = \frac{4}{2b-7}$$

$8(2b-7) = 4(b+10)$

$16b - 56 = 4b + 40$

$12b - 56 = 40$

$12b = 96$

$b = 8$

$$\frac{m}{8} = \frac{m+7}{9}$$

$9m = 8(m+7)$

$9m = 8m + 56$

$m = 56$

$$\frac{3x+2}{2x} = \frac{x+4}{x}$$

$x(3x+2) = 2x(x+4)$

$3x^2 + 2x = 2x^2 + 8x$
$-2x^2 \qquad -2x^2$

$x^2 + 2x = 8x$

$x^2 - 6x = 0$

$x(x-6) = 0$

$x = 0 \quad x-6 = 0$

$\qquad x = 6$

$$\frac{9+x}{x} = \frac{2x+2}{x}$$

$x(9+x) = x(2x+2)$

$9x + x^2 = 2x^2 + 2x$
$-x^2 \qquad -x^2$

$9x = x^2 + 2x$
$-9x \qquad -9x$

$0 = x^2 - 7x$

$x(x-7) = 0$

$x = 0 \quad x-7 = 0$

$\qquad x = 7$

$$\frac{n-9}{n+5} = \frac{7}{4}$$

$$4(n-9) = 7(n+5)$$

$$4n-36 = 7n+35$$

$$-36 = 3n+35$$

$$-71 = 3n$$

$$n = \frac{-71}{3}$$

$$\frac{x}{5} = \frac{-4}{x-9}$$

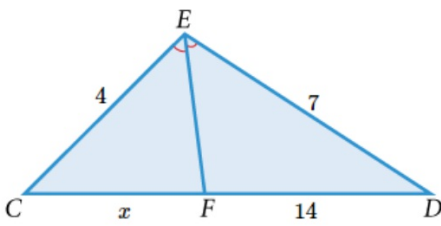$$x(x-9) = -20$$

$$x^2-9x = -20$$

$$x^2-9x+20 = 0$$

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

$$x-5=0 \qquad x-4=0$$

$$x=5 \qquad x=4$$

$$\frac{20}{-5 \cdot -4}$$

Find the value for x.
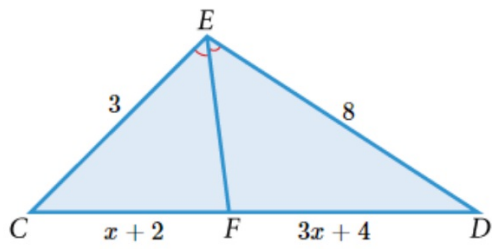

$$\frac{x}{14} = \frac{4}{7}$$

$$\frac{4}{x} = \frac{7}{14}$$

$$7x = 56$$

$$x = 8$$

Find the value for x.

E

3

8

C $x + 2$ F $3x + 4$ D

$$\frac{x+2}{3x+4} = \frac{3}{8}$$

$$8(x+2) = 3(3x+4)$$

$$8x + 16 = 9x + 12$$

$$x = 4$$