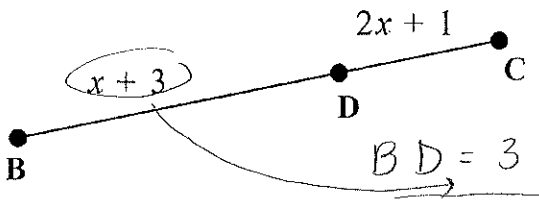
Geom Sem 1 Rev Wk #1 Name: Solutions

1) Given that D is between B and C, BD = $x + 3$, CD = $2x - 1$, and BC = 13. Find BD.



BD + DC = BC

$x + 3 + 2x + 1 = 13$

$3x + 4 = 13$

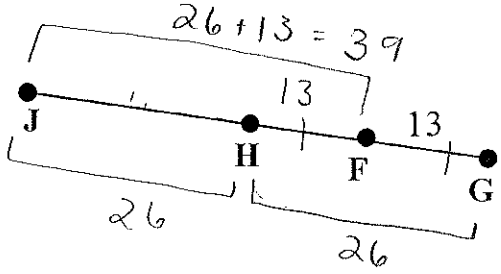
$-4 \quad -4$

$\frac{3x}{3} = \frac{9}{3}$ $x = 3$

$BD = 3 + 3$

$BD = 6$

2) Given that F is the midpoint of $\overline{GH}$ and H is the midpoint of $\overline{GJ}$. Find the length of $\overline{JF}$.



HF = FG

JH = HG

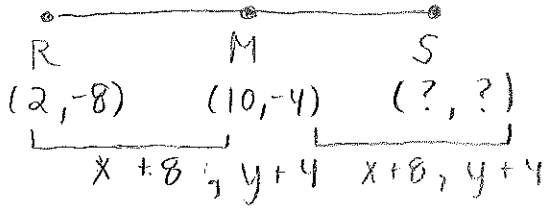
JF = 39

3) Find the midpoint of segment $\overline{GH}$: $G(-3, 5); H(7, -2)$

x_1, y_1, x_2, y_2

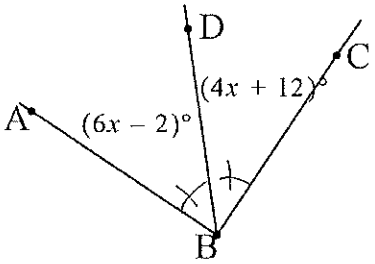
$\left(\frac{-3+7}{2}, \frac{5+-2}{2}\right) = \left(\frac{4}{2}, \frac{3}{2}\right) =$ (2, 1.5) or (2, 3/2)

4) Given that M is the midpoint of segment $\overline{RS}$. Find the coordinates of the missing endpoint if $R(2, -8)$ and $M(10, -4)$.



S = (18, 0)

For #5 – 6, find the request value, given that BD bisects $\angle ABC$.



5) Find x.

$6x - 2 = 4x + 12$

$+2 \quad +2$

$6x = 4x + 14$

$-4x \quad -4x$

$2x = 14$

$\frac{2x}{2} = \frac{14}{2}$

$x = 7$

6) Find $m\angle DBC$.

$4(7) + 12$

$28 + 12$

$40°$

7) Given that $\angle E$ is complementary to $\angle F$. If $\angle E = (3x + 20)$ and $m\angle F = (2x - 10)$, then find x and $m\angle E$.

$\angle E + \angle F = 90°$

$3x + 20 + 2x - 10 = 90$

$5x + 10 = 90$

$-10 \quad -10$

$\frac{5x}{5} = \frac{80}{5}$

$x = 16$

$m\angle E = 3(16) + 20$

$= 48 + 20$

$= 68°$

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8) Given that $m\angle D = (2x + 70)°$ and $m\angle E = (8x - 10)°$. If $\angle D$ is supplementary to $\angle E$, then find the value of $\angle E$.

$\angle D + \angle E = 180°$

$2x + 70 + 8x - 10 = 180$

$10x + 60 = 180$

$-60 \quad -60$

$10x = 120$

$\frac{10x}{10} = \frac{120}{10}$

$x = 12$

$m\angle E = 8(12) - 10$

$= 96 - 10$

$\boxed{m\angle E = 86°}$

9) Find the length of AB if the endpoints have the following coordinates: $A(-3, 2)$ and $B(5, -2)$. Round your answer to one decimal place, if needed. Use the distance formula or the Pythagorean Theorem.

$x_1, y_1 \quad x_2, y_2$

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

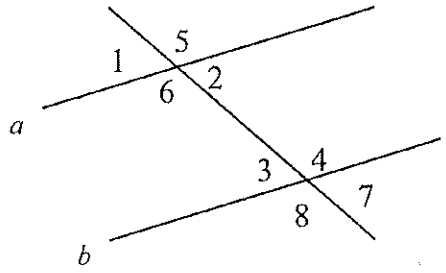
$d = \sqrt{(8)^2 + (-4)^2}$

$d = \sqrt{64 + 16}$

$d = \sqrt{80}$

$d \approx 8.9$

For #10 – 12: Use the diagram shown to the right.



10) Which angle is corresponding with $\angle 5$?

$\angle 4$

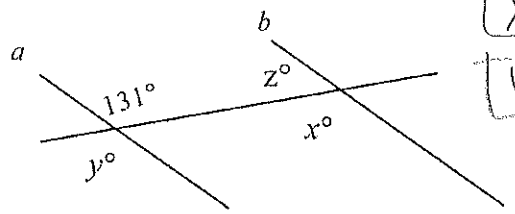
11) Which angle is alternate interior with $\angle 3$?

$\angle 2$

12) Which angle is consecutive interior with $\angle 6$?

$\angle 3$

13) Given that $a//b$, solve for each variable.



$\boxed{x = 131}$

$\boxed{y = 131}$

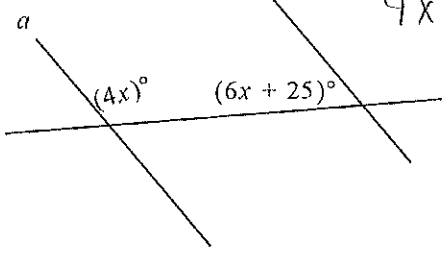
$131 + z = 180$

$-131 \quad -131$

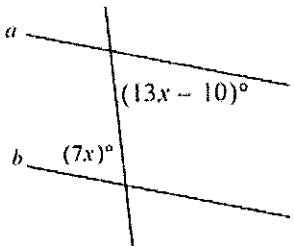
$\boxed{z = 49}$

For #14 – 15: Given that $a//b$, solve for x.

14)



15)



$4x + 6x + 25 = 180$

$10x + 25 = 180$

$-25 \quad -25$

$\frac{10x}{10} = \frac{155}{10}$

$\boxed{x = 15.5}$

$7x = 13x - 10$

$-13x \quad -13x$

$\frac{-6x}{-6} = \frac{-10}{-6}$

$\boxed{x = \frac{5}{3} \text{ or } 1.\overline{6}}$

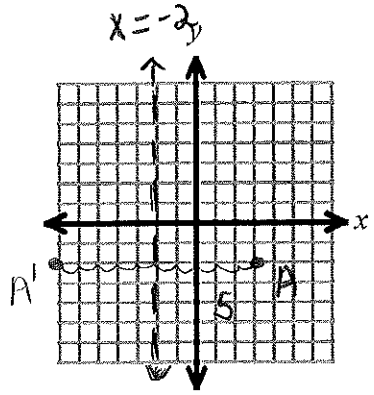
16) Complete the following syllogism:

- If Owen gets his driver's license, then he will drive his sister to school.
- If Owen drives his sister to school, then his parents will give him money for gas.
- If Owen gets money for gas, then he will not have to get a job.

Conclusion:

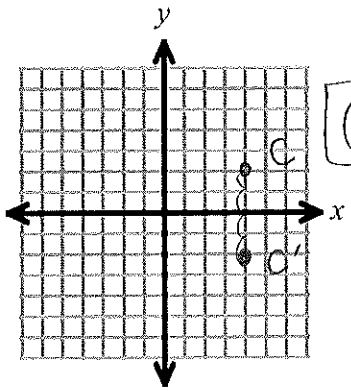
If Owen gets his driver's license, then he will not have to get a job.

17) Point $A(3,-2)$ is reflected across the line $x=-2$. Find the coordinates of A'.



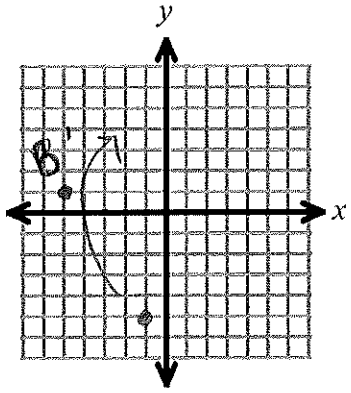
$(-7,-2)$

19) Point $C\ (4,2)$ is reflected across the x-axis. Find C'.



$(4,-2)$

18) Point $B(-1,-5)$ is rotated 90 degrees clockwise about the origin. Find B'.



$(x,y) \rightarrow (y,-x)$

$(-5,1)$

20) A shape is translated along the vector $\langle -2,5\rangle$. Describe the movement in words.

left 2 (neg.)
up 5 (pos.)

21) Line A is parallel to the line $y=-3x+4$. Line A passes through the point $(-7,5)$. Write the equation of line A in (h,k) form.

h k

// $m=-3$

$y=m(x-h)+k$

$y=-3(x+7)+5$

22) Line B is perpendicular to the line $y=-3x+4$. Line B passes through the point $(11,-2)$. Write the equation of line B in (h,k) form.

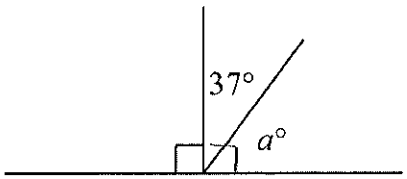
h k

$\perp\ m=\frac{1}{3}$

$y=\frac{1}{3}(x-11)-2$

For #23 – 24, find the value of each variable.

23)

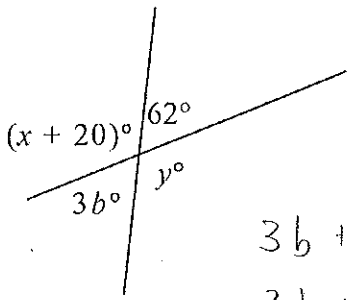


$37+a=90$

$-37 \quad -37$

$a=53$

24)



$62+y=180$

$-62 \quad -62$

$y=118$

$x+20+62=180$

$x+82=180$

$-82 \quad -82$

$x=98$

$36+y=180$

$36+118=180$

$-118 \quad -118$

$\frac{36}{3}=\frac{62}{3}$

$b=\frac{62}{3}$ or $20.\overline{6}$

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Name: