Review of Standards 3 & 4

Name: KEY

∠FAB & ∠EAC (1) Name **two** angles that form a linear pair with ∠ FAE.

pt A is midpt of $\overline{EB}$

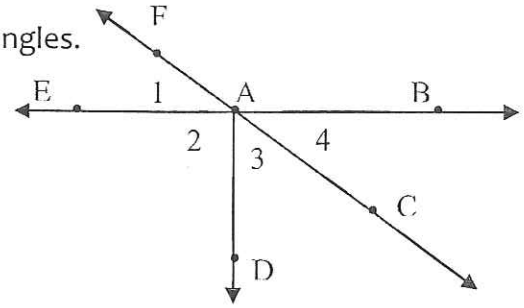
$\overline{EA} \cong \overline{AB}$ (2) If $\overleftrightarrow{FC}$ is a bisector of $\overline{EB}$, then what must be true?

∠3 & ∠4 (3) If m∠EAD = 90°, name a pair of complementary angles.

∠1 & ∠3 & ∠DAB (4) List three angles that are adjacent to < EAD.

∠4 (5) What angle forms a vertical pair with ∠1?

∠EAC (6) What angle forms a vertical pair with ∠FAB?

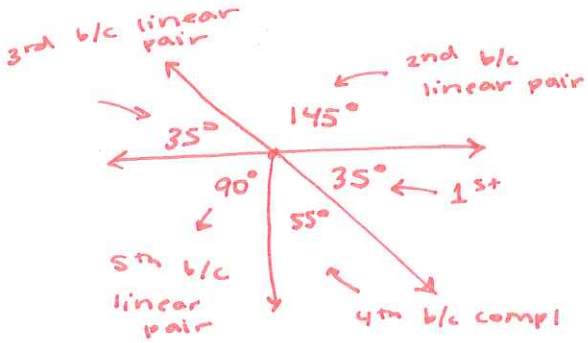


(7) If m∠BAC = 35° and you are told ∠FAE and ∠CAD are complementary, find the measures of the following angles:

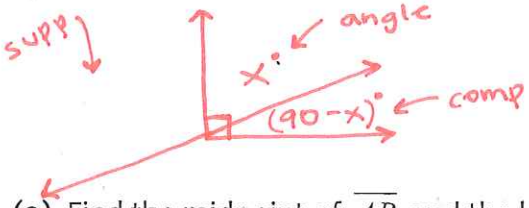
m∠FAE = 35°

m∠CAE = 145°

m∠FAB = 145°



(8) The measure of the supplement of an angle is 14 less than 3 times the measure of the complement. Find the measure of the complement.



$\text{supp} = 3(90-x)-14$

$= 270 - 3x - 14$

$= 256 - 3x$

$(256-3x) + x = 180$

$256 - 2x = 180$

$-2x = -76$

$x = 38$

(9) Find the midpoint of $\overline{AB}$ and the length of $\overline{AB}$ when A = (5, -1) and B = (7, 3)

midpt: $\frac{5+7}{2}, \frac{-1+3}{2}$

$\frac{12}{2}, \frac{2}{2}$

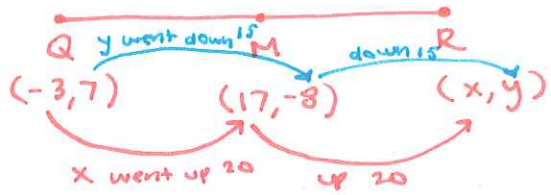
(6, 1)

length: $\sqrt{(2)^2 + (4)^2}$

$\sqrt{4+16}$

$\sqrt{20} = \sqrt{4 \cdot 5} = 2\sqrt{5}$

(10) Find the coordinates of R if M is the midpoint of $\overline{QR}$ and Q = (-3,7) and M = (17, -8).



$x = 37$ $y = -23$

OR

$\frac{-3+x}{2} = 17$ $\frac{7+y}{2} = -8$

$-3 + x = 34$ $7 + y = -16$

$x = 37$ $y = -23$

(37, -23)

(11) Find the perimeter and area of the following polygons:

(a) Triangle ABC with coordinates: A(-1, 3), B(1, -2) and C(6, 0) * ∠B is a right angle

Perimeter : $AB = \sqrt{(2)^2 + (5)^2}$

$= \sqrt{4 + 25}$

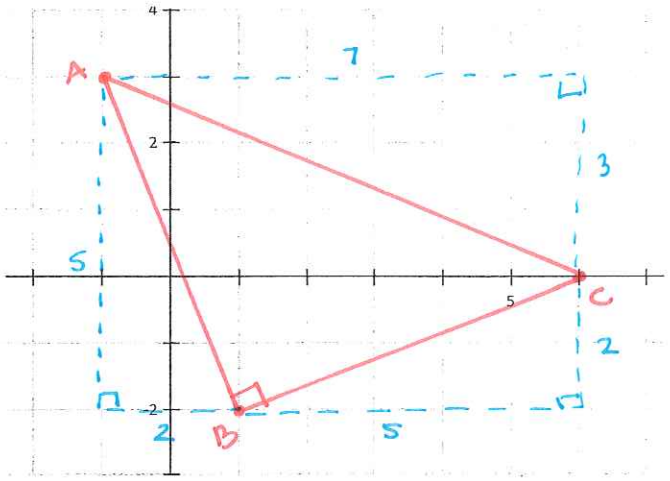
$= \sqrt{29}$

$BC = \sqrt{(2)^2 + (5)^2} = \sqrt{29}$

$AC = \sqrt{(7)^2 + (3)^2}$

$= \sqrt{49 + 9}$

$= \sqrt{58}$



Area : $\frac{1}{2}\, b \cdot h$

$\frac{1}{2}(\sqrt{29})(\sqrt{29})$

$\frac{1}{2}(29)$

Perimeter = $2\sqrt{29} + \sqrt{58}$ units

Area = 14.5 units^2

(b) ~~Quadrilateral~~ Rectangle WXYZ with coordinates: W(1,-2), X(~~-1,1~~ 0,-2), Y(~~6~~,0) and Z(~~3,3~~ 5,3)

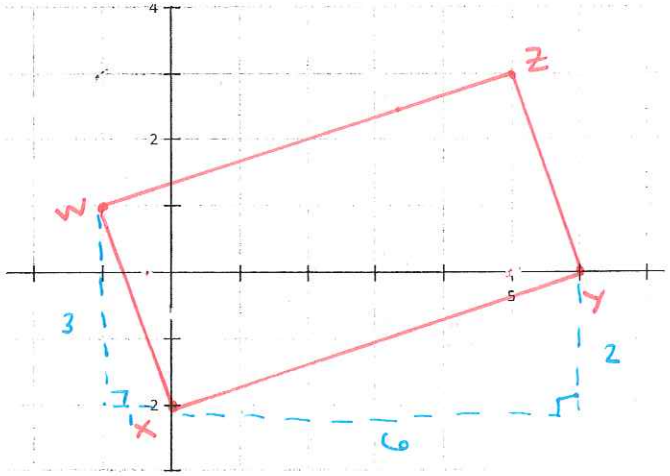
Perimeter : $WX = \sqrt{(1)^2 + (3)^2}$

$= \sqrt{1 + 9} = \sqrt{10}$

$XY = \sqrt{(6)^2 + (2)^2}$

$= \sqrt{36 + 4}$

$= \sqrt{40} = \sqrt{4 \cdot 10} = 2\sqrt{10}$



Area : $\frac{1}{2}\, b \cdot h$

$\frac{1}{2}(\sqrt{10})(2\sqrt{10})$

10

Perimeter = $2(\sqrt{10}) + 2(2\sqrt{10}) = 6\sqrt{10}$

Area = 10

* **CHALLENGE!** In the figure, $\overrightarrow{BD}$ bisects ∠ABE, $\overrightarrow{BE}$ bisects ∠ABG, m∠EBF = 37° and m∠CBG = 44. Find m∠DBF.

71°

same measure

m∠ABE + m∠EBG + 44 = 180

m∠ABE = m∠EBG = 68