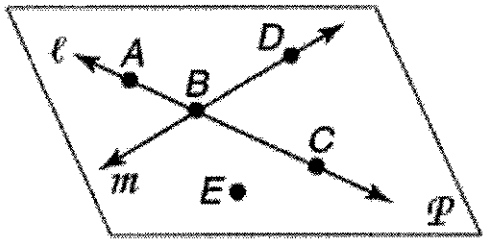
Geometry A
1.1 Points, Lines, and Planes **ASSIGNMENT**

Name Key
Hour _____ **Date** _____

Refer to the figure at the right.



1. Name a line that contains point *A*. ex) ℓ

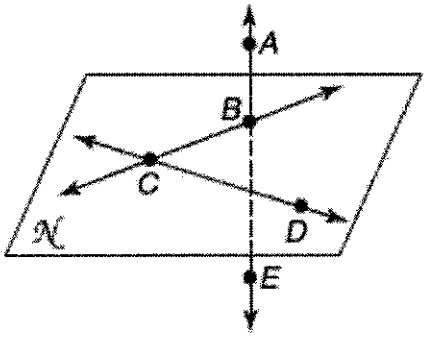
2. What is another name for line *m*? ex) $\overleftrightarrow{BD}$

3. Name a point not on $\overleftrightarrow{AC}$. ex) E

4. Name the intersection of $\overleftrightarrow{AC}$ and $\overleftrightarrow{DB}$. B

5. Name a point not on ℓ or *m*. E

Refer to the figure at the right.

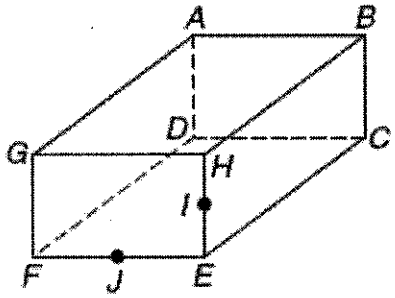


6. Name a line that is not contained in plane $\mathcal{N}$. $\overleftrightarrow{AE}$

7. Name a plane that contains point *B*. N

8. Name three collinear points. A, B, E

Refer to the figure at the right.

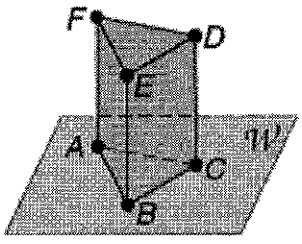


9. How many planes are shown in the figure? 6

10. Are points *B*, *E*, *G*, and *H* coplanar? No

11. Name a point coplanar with *D*, *C*, and *E*. B

Refer to the figure at the right.



12. How many planes are shown in the figure? 5

13. How many of the planes contain points *F* and *E*? 2

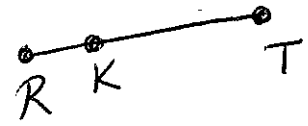
14. Name four points that are coplanar. ex) D, C, B, E

15. Are points *A*, *B*, and *C* coplanar? Yes

16. Draw and label a figure that meets the following conditions.

Point K lies on $\overleftrightarrow{RT}$

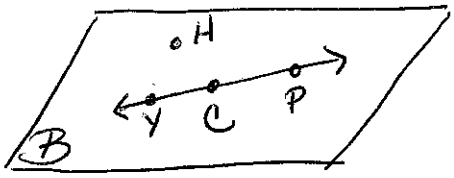
ex)



17. Draw and label a figure that meets the following conditions.

$\overleftrightarrow{YP}$ lies in plane $\mathcal{B}$ and contains point C, but does not contain point H.

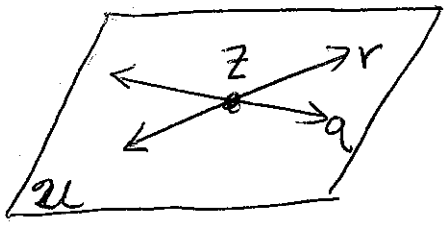
ex



18. Draw and label a figure that meets the following conditions.

Lines q and r intersect at point Z in plane $\mathcal{U}$.

ex)



Review:

19. Solve the following equations:

a. $5x - 8 = 12$

$5x - 8 = 12$
$+8 \quad +8$
$5x = 20$
$\frac{5x}{5} = \frac{20}{5}$
$x = 4$

b. $\frac{3}{5}y + 9 = -7$

$\frac{3}{5}y + 9 = -7$
$-9 \quad -9$
$\frac{3}{5}y = -16$
$\left(\frac{5}{3}\right)\frac{3}{5}y = -16\left(\frac{5}{3}\right)$
$y = -26\frac{2}{3}$

c. $4p + 7 = -2p + 25$

$4p + 7 = -2p + 25$
$+2p \quad +2p$
$6p + 7 = 25$
$-7 \quad -7$
$\frac{6p}{6} = \frac{18}{6}$
$p = 3$

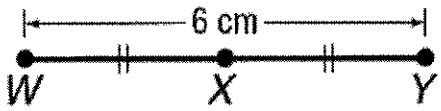
Geometry A **Name** _____
1.2 Linear Measure and Precision **ASSIGNMENT** **Hour** ____ **Date** _____

Find the measurement of each indicated segment. Assume that the drawing is not drawn to scale.

1. $\overline{RT}$

4.5cm

2. $\overline{WX}$

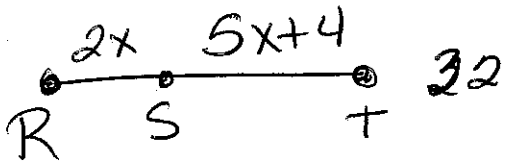


3cm

For #3-4,

a. Make a sketch of each situation.
b. Find the value of x and ST if S is between R and T.
c. SHOW YOUR WORK.

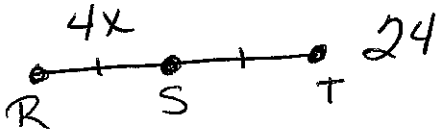
3. $RS = 2x$, $ST = 5x + 4$, $RT = 32$



$2x+5x+4=32$
$7x+4=32$
$7x=28$
$x=4$

$ST=5(4)+4$
$=24$

4. $RS = 4x$, $\overline{RS} \cong \overline{ST}$, and $RT = 24$

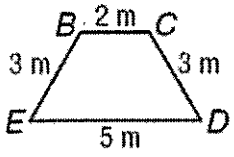


$4x+4x=24$ or $4x=12$
$8x=24$ $x=3$
$x=3$

$ST=4(3)=12$

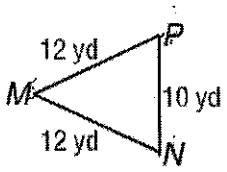
Use the figures to determine whether each pair of segments is congruent.

5. $\overline{BE}, \overline{CD}$



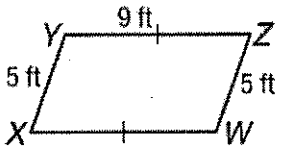
Yes

6. $\overline{MP}, \overline{NP}$



No

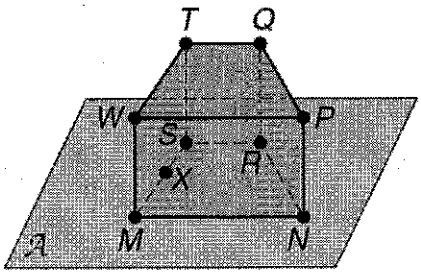
7. $\overline{WX}, \overline{WZ}$



No

Review:

Refer to the figure at the right for #8-13.



8. How many planes are shown in the figure? 6

9. Name four points on plane $\mathcal{A}$. S, R, N, M

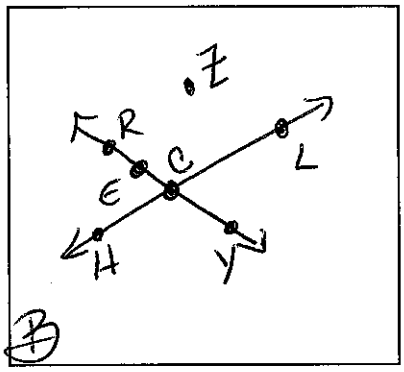
10. Name three collinear points. M, X, S

11. Name three noncollinear points. ex) W, R, X

12. Are the points N, R, S, and W coplanar? No
Explain why or why not. W is not in the same plane.

13. Draw and label a plane $\mathcal{B}$ that meets all of the following conditions.
   - In plane $\mathcal{B}$, $\overleftrightarrow{HL}$ intersects $\overleftrightarrow{RY}$ at C.
   - Point E is collinear with points R and Y.
   - Point Z lies in plane $\mathcal{B}$, but is not collinear with $\overleftrightarrow{HL}$ or $\overleftrightarrow{RY}$.

ex)



14. Solve:

a. $-6x - 7 = 41$

$-6x - 7 = 41$
$+7 \quad +7$
$-6x = 48$
$-6 \quad -6$
$x = -8$

b. $4x + 8 = x + 2$

$4x + 8 = x + 2$
$-x \quad -x$
$3x + 8 = 2$
$-8 \quad -8$
$3x = -6$
$3 \quad 3$
$x = -2$

Geometry A **Name** _____
1.3 Distance and Midpoint **ASSIGNMENT** **Hour** ___ **Date** _____

Find the distance between each pair of points.

1. A(2, 3) and B(5, 7)

$\sqrt{(2-5)^2+(3-7)^2}$

$\sqrt{9+16}$ $\sqrt{25}$

$=5$

2. V(-2, -6) and W(6, 9)

$\sqrt{(-2-6)^2+(-6-9)^2}$

$\sqrt{64+225}$

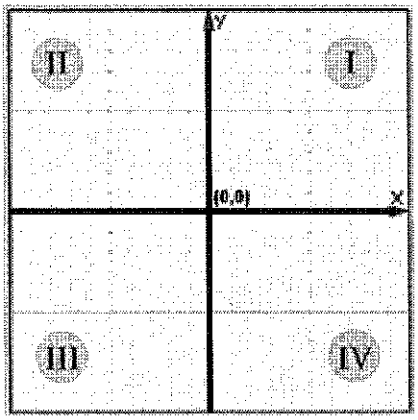
$\sqrt{289} = 17$

3. Which segment is longer? AB or VW?

VW

4. Segment AB has endpoints A(2, 3) and B(5, 7). Find the midpoint. In what quadrant does the midpoint lie?

Refresher:



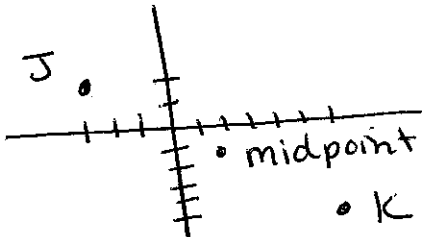
$\frac{2+5}{2}, \frac{3+7}{2}$

$(3.5, 5)$ Quad I

5. Segment JK has endpoints J(-3, 2) and K(6, -5). **Prove** that the midpoint must lie in Quadrant IV.

$\frac{-3+6}{2}$ $\frac{2+-5}{2}$

$(1.5, -1.5)$



6. If the midpoint of segment *CD* is (-3, 7) and the coordinates of *C* are (-2, -10), what are the coordinates of *D*?

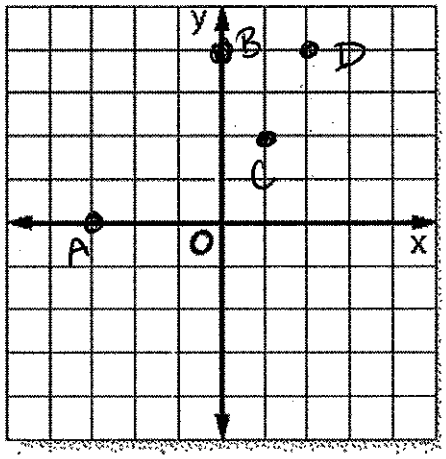
$\left(\frac{-2+x}{2}, \frac{-10+y}{2}\right)$

$(-4, 24)$

$\frac{-2+x}{2} = -3$ $\frac{-10+y}{2} = 7$

7. a. Use the coordinates to find the length of segments AB and CD.

A(-3,0) B(0, 4) C(1, 2) D (2, 4)



$\sqrt{(-3-0)^2+(0-4)^2}$

$\sqrt{9+16}$

$\sqrt{25} = 5$

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

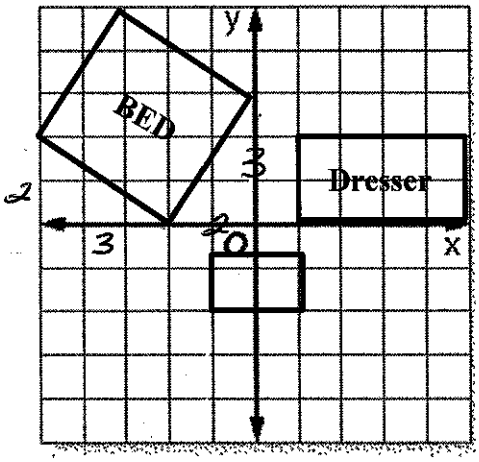
$\sqrt{1+4}$

$\sqrt{5} \approx 2.2$

b. If you wanted to make segment CD the same length as AB, where could you move point D?

(-1, 0)

8. The layout for a bedroom is shown at the right.



a. What are the dimensions (length and width) of the dresser?

4 x 2

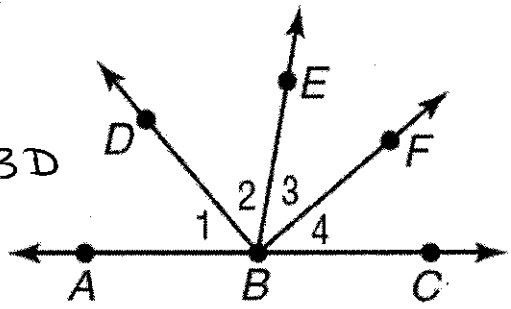
b. What are the dimensions (length and width) of the bed?

$\sqrt{13} \approx 3.6$

6 3.6 x 3.6

Geometry A **Name** _____
1.4 Angle Measures **ASSIGNMENT** **Hour** ____ **Date** _____

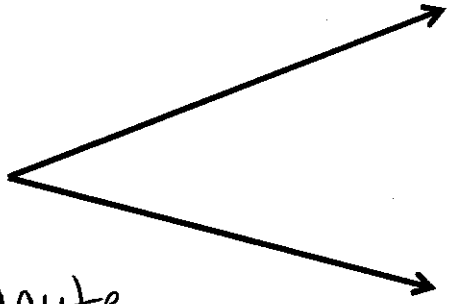
For #1-3, use the figure at the right.



1. Name the vertex of $\angle 4$ B
2. Give two other names for $\angle 2$ ∠DBE, ∠EBD
3. Name the sides of $\angle ABF$ $\overrightarrow{BA}$ $\overrightarrow{BF}$

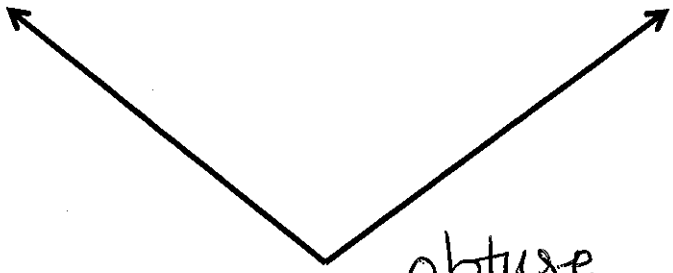
Measure each angle, and classify each angle and either right, acute or obtuse.

4.



acute

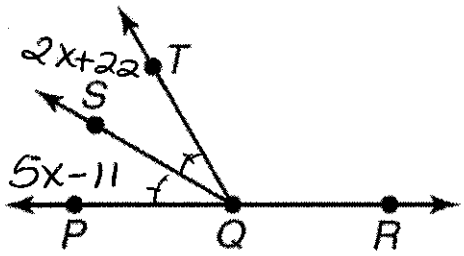
5.



obtuse

For #6-7, use the figure to the right. *QS* bisects $\angle PQT$. $\overrightarrow{QP}$ and $\overrightarrow{QR}$ are opposite rays.

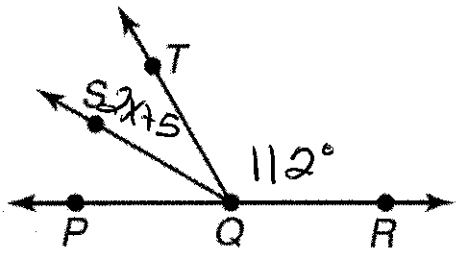
6. If $m\angle PQS = 5x-11$ and $m\angle SQT = 2x+22$,



a. Find x $5x-11 = 2x+22$ $-2x \quad -2x$ $3x-11 = 22$ $+11 \quad +11$ $3x = 33$ $x = 11$

b. Find $m\angle PQT$. $5(11)-11 = 44 \times 2 = 88°$

7. If $m\angle SQT = 2x+5$ and $m\angle TQR = 112°$



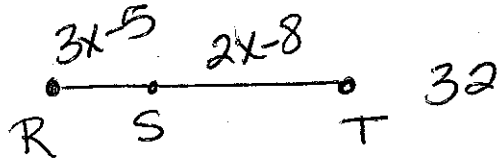
a. Find x $2(2x+5)+112 = 180$ $4x+10+112 = 180$ $4x+122 = 180$ $-122 \quad -122$ $4x = 58$ $\frac{4x}{4} = \frac{58}{4}$ $x = 17$

b. Find $m\angle TQP$. $2(17)+5 = 39$ $\times 2$ 78

Review:

8. a. Make a sketch of each situation.
   b. Find the value of x and ST if S is between R and T.
   c. SHOW YOUR WORK.

$RS = 3x - 5$, $ST = 2x - 8$, $RT = 32$



$3x - 5 + 2x - 8 = 32$

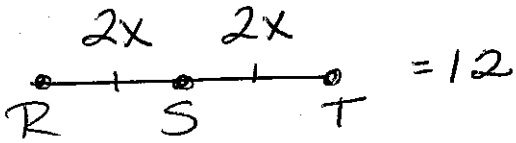
$5x - 13 = 32$

$5x = 45$

$x = 9$

$ST = 10$

$RS = 2x$, $\overline{RS} \cong \overline{ST}$, and $RT = 12$



$2x + 2x = 12$

$4x = 12$

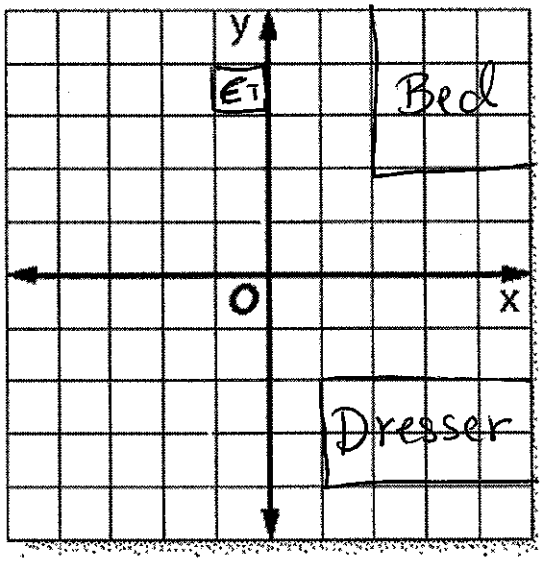
$x = 3$

$ST = 2(3)$

$= 6$

9. Create a layout of your bedroom (or your dream bedroom) on the grid below. Include a bed, dresser, and end table. Find the dimensions (length and width) of all 3 pieces of furniture.

ex)



E.T 1 x 1

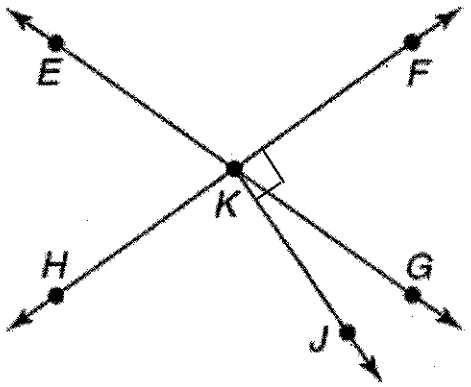
Bed 3 x 3

Dresser 4 x 2

Geometry A
1.5 Angle Relationships **ASSIGNMENT**

Name _____
Hour ____ **Date** _____

For #1-4, refer to the figure at the right.



1. Name two vertical angles. ex) $\angle EKH$ and $\angle FKG$
2. Name a linear pair. ex) $\angle EKF$ and $\angle FKG$
3. Name two adjacent angles. ex) $\angle GKJ$ and $\angle JKH$
4. Name an angle complementary to $\angle FKG$. ex) $\angle GKJ$

For #5-13, SHOW ALL WORK.

5. The measure of two complementary angles are $16x - 9$ and $4x + 3$. Find the measures of the angles.

$16x-9+4x+3=90$
$20x-6=90$
$20x=96$
$x=4.8$

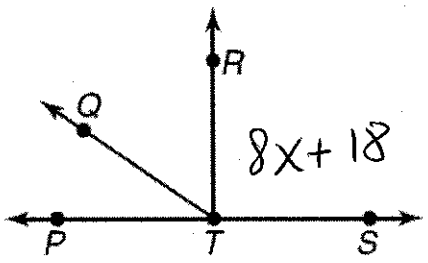
$16(4.8)-9=67.8$
$4(4.8)+3=22.2$

6. The measure of the supplement of an angle is 44 less than the measure of the angle. Find the measures of the angles.

$x+x-44=180$
$2x-44=180$
$2x=224$
$x=112$

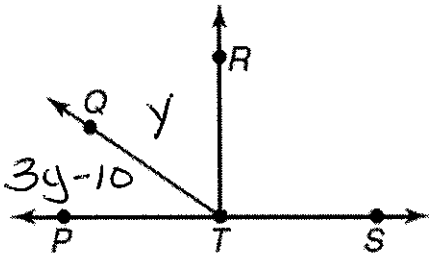
112, 68

7. If $m\angle RTS = 8x + 18$, find the value of x so that $\overrightarrow{TR} \perp \overrightarrow{TS}$.



$8x+18=90$
$8x=72$
$x=9$

8. If $m\angle PTQ = 3y - 10$ and $m\angle QTR = y$, find the value of y so that $\angle PTR$ is a right angle.

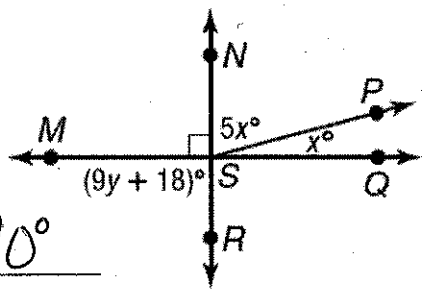


$3y-10+y=90$
$4y-10=90$
$4y=100$
$y=25$

9. a. Find the values of x and y and $m\angle MSN$ so that $\overleftrightarrow{NR} \perp \overleftrightarrow{MQ}$.

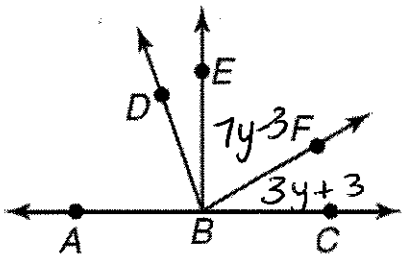
$5x+x=90$
$6x=90$
$x=15$

$9y+18=90$
$-18\ \ -18$
$9y=72$
$y=8$



$x =$ 15 $y =$ 8 $m\angle MSN =$ 90°

10. If $m\angle EBF = 7y-3$ and $m\angle FBC = 3y+3$, find the value of y so that $\overleftrightarrow{EB} \perp \overleftrightarrow{BC}$.

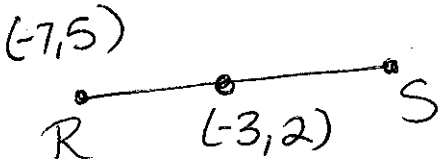


$y =$ 9

$7y-3+3y+3=90$
$10y=90$
$y=9$

Review:

11. If the midpoint of segment RS is (-3, 2) and R (-7, 5) is an endpoint, find the coordinates of S.



(1, -1)

$\frac{-7+x}{2} = -3$ $\frac{5+y}{2} = 2$

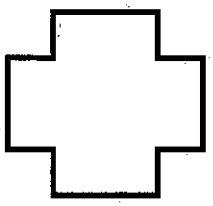
$-7+x=-6$ $5+y=4$

$x=1$ $y=-1$

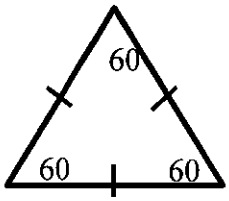
Geometry A **Name** _____

1.6 Polygons **ASSIGNMENT** **Hour** ____ **Date** _____

Name is polygon by its number of sides. Then classify each polygon as *convex* or *concave,* and as *regular* or *irregular.*

1. 

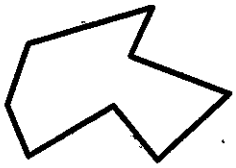
dodecagon
concave
irregular

2. 

equilateral triangle
convex
regular

3. 

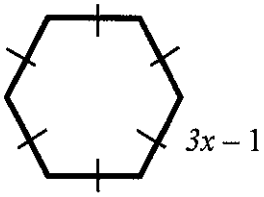
rectangle
convex
irregular

4. 

Octagon
concave
irregular

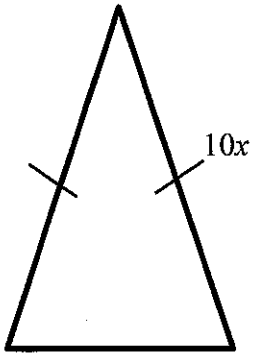
Find *x* in each polygon for the given perimeters.

5. Perimeter = 66 cm



$6(3x-1)=66$
$3x-1=11$
$3x=12$
$x=4$

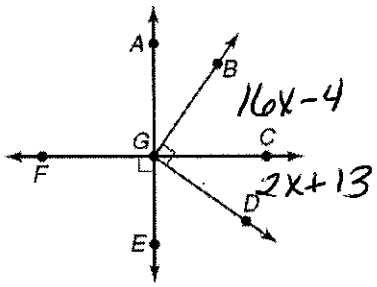
6. Perimeter = 192 feet



$10x+10x+52=192$
$20x+52=192$
$20x=140$
$x=7$

Review:

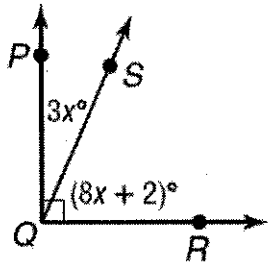
7. If $m\angle BGC = 16x-4$ and $m\angle CGD = 2x+13$, find the value of x so that $\angle BGD$ is a right angle.



$16x-4+2x+13=90$
$18x+9=90$
$18x=81$
$x=4.5$

$x =$ 4.5

8. Find the value of x, $m\angle PQS$, and $m\angle SQR$.



$3x+8x+2=90$
$11x=88$

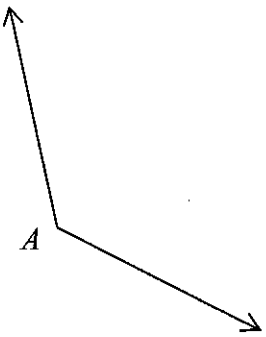
$x =$ 8 $m\angle PQS =$ 24 $m\angle SQR =$ 66

Geometry A
1.7 Basic Constructions **ASSIGNMENT**

Name _____
Hour ____ **Date** _____

1. Construct the perpendicular bisector of segment XY.

2. Construct $\overrightarrow{AD}$, the bisector of $\angle A$.



Review:

3. On a number line, suppose point E has a coordinate of 3, EG =6, and EX = 12. Is point G the midpoint of segment EX? What are possible coordinates for G and X?

Yes ex) G 9
X 12

4. Lisa makes a cherry pie and an apple pie (YUMMY!). She cuts the cherry pie into six equal edges and she cuts the apple pie into 8 equal wedges. How many degrees greater is the measure of a cherry pie wedge than the measure of an apple pie wedge?

C $360/6 = 60°$ A: $360/8 = 45°$

$60-45 = 15°$

5. Describe all of the situations in which the following statements are true:
   a. Two vertical angles are also complementary. $= 45°$
   b. A linear pair is also supplementary. 2 angles = 180 when added
   c. Two supplementary angles are also a linear pair. 2 angles share a common side and = 180
   d. Two vertical angles are also a linear pair.

never true