BRINGING IT ALL TOGETHER
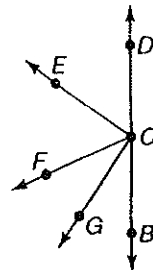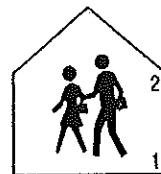
In the figure, $\overrightarrow{CB}$ and $\overrightarrow{CD}$ are opposite rays, $\overrightarrow{CE}$ bisects $\angle DCF$, and $\overrightarrow{CG}$ bisects $\angle FCB$.

(1.) If $m\angle DCE = 4x + 15$ and $m\angle ECF = 6x - 5$, find $m\angle DCE$.

(2.) If $m\angle FCG = 9x + 3$ and $m\angle GCB = 13x - 9$, find $m\angle GCB$.

(3.)   The diagram shows a sign used to warn drivers of a school zone or crossing. Measure <u>and</u> classify each numbered angle.

a) $m\angle 1 =$ _____

b) $m\angle 2 =$ _____

_____   _____

1-5

For Exercises 4 – 7 use the figure at the right.

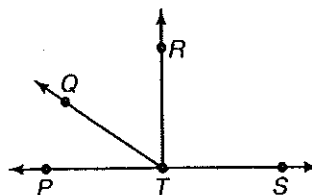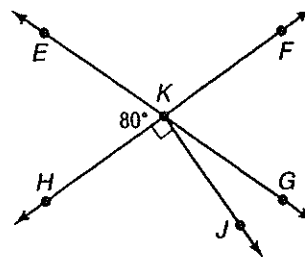(4.) Name two acute vertical angles.

(5.) Name a linear pair.

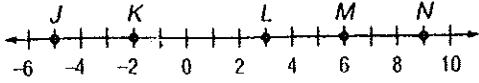(6.) Name two acute adjacent angles.

(7.) Name an angle supplementary to $\angle FKG$.

(8.) Find x so that $\overline{TR} \perp \overline{TS}$
if $m\angle RTS = 8x + 18$.

(9.) Find $m\angle PTQ$ if $\overline{TR} \perp \overline{TS}$
and $m\angle PTQ = m\angle RTQ - 18$.

10. Use the number line to find each measure.

a) LN

b) JL

11. Find the distance between each pair of points.

a) $F(-3, -2)$, $G(1, 1)$

b) $Y(-6, 0)$, $P(2, 6)$

12. Find the coordinates of the midpoint of a segment having the given endpoints.

a) $A(3, 1)$, $B(5, 3)$

b) $T(-4, 9)$, $U(7, 5)$

1-4

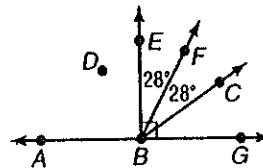**Angle Measure**

In 13-16, refer to the figure at the right.

13. Name a right angle.

14. Name an obtuse angle.
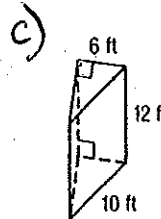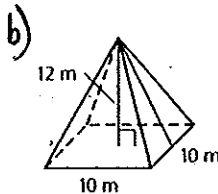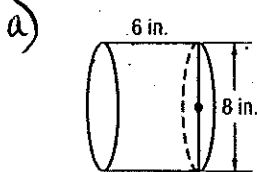
15. Name a point in the interior of $\angle EBC$.

16. What is the angle bisector of $\angle EBC$?

1-7

Three-Dimensional Figures

17. Find the surface area and volume of each solid.

a)

6 in.

8 in.

b)

12 m

10 m

10 m

c)

6 ft

12 ft

10 ft

(18) **Make a conjecture about the next number in the pattern.**

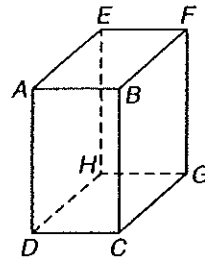a)
$$-6, -3, 0, 3, 6$$

b)
$$4, -2, 1, -\frac{1}{2}, \frac{1}{4}$$

(19) **Refer to the figure at the right.**

a) Name all planes that are parallel to plane ABC.

b) Name all segments that are parallel to $\overline{FG}$.

(20) In the figure, $m\angle 5 = 100$. **Find the measure of each angle.**
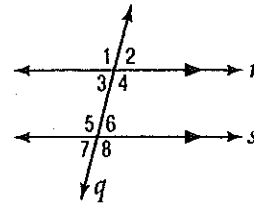
a) $\angle 1$

b) $\angle 3$

c) $\angle 4$

d) $\angle 7$

e) $\angle 6$

f) $\angle 2$

(21) **Determine the slope of the line that contains the given points.**

a) $F(-6, 2), M(7, 9)$

b) $Z(1, 10), L(5, -3)$

(22.) Determine whether $\overline{EF}$ and $\overline{PQ}$ are parallel, perpendicular, or neither. $E(0, 4), F(2, 3), P(-3, 5), Q(1, 3)$

Equations of lines

(23.) Write an equation in slope-intercept form of the line with slope -2 that contains $(2, 5)$.

3

(24) Write an equation in slope-intercept form of the line that contains $(-4, -2)$ and $(-1, 7)$.
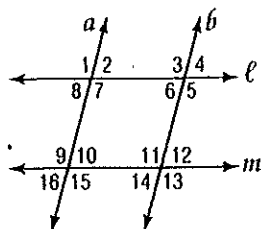
3-5

Proving Lines Parallel

(25) Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

a) $\angle 1 \cong \angle 15$

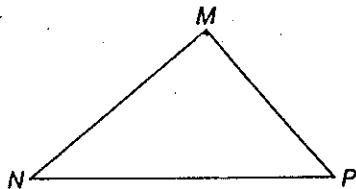b) $\angle 9 \cong \angle 11$

c) $\angle 2 \cong \angle 6$

3-6

Perpendiculars and Distance

(26) Draw the segment that represents the distance from m to $\overleftrightarrow{NP}$.

4-1

(27) **Find x and the measure of each side of the triangle.**
$\triangle ABC$ is equilateral with $AB = 3x - 15$, $BC = 2x - 4$, and $CA = x + 7$.

(28) $\triangle DEF$ is isosceles, $\angle D$ is the vertex angle, $DE = x + 5$, $DF = 5x - 7$ and $EF = 2x - 1$.
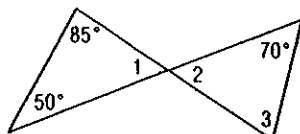
4-2

Angles of Triangles
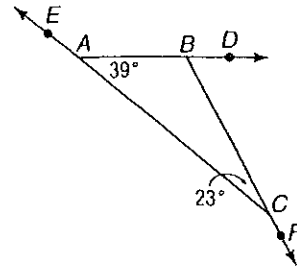
(29) **Find the measure of each angle.**

a) $m\angle 1$

b) $m\angle 3$

4

Geometry Semester I Review B   Name _____

30.) **Find the measure of each angle without using a protractor.**

a) ∠DBC

b) ∠ABC

c) ∠ACF

d) ∠EAB

4-3

31.) **Complete each congruence statement if △TSR ≅ △WVU.**

a) ∠R ≅

b) ____ ≅ ∠W

c) ∠S ≅

d) $\overline{RT}$ ≅

e) ____ ≅ $\overline{VU}$

f) ____ ≅ $\overline{WV}$

4-4

32.) In quadrilateral RSTU, $\overline{RS}$ ≅ $\overline{TS}$ and $\overline{SU}$ bisects ∠RST. Name the postulate that could be used to prove △RSU ≅ △TSU.
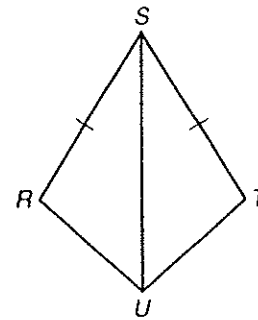
33. In quadrilateral PQRS, $\overline{QR}\|\overline{SP}$ and $\overline{PQ}\|\overline{RS}$. Name the postulate that could be used to prove △PQR ≅ △RSP.
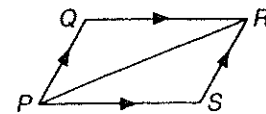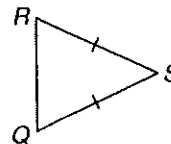
4-6

Isosceles Triangle

Refer to the figure for questions 34-38.

34.) What kind of triangle is △QRS?

35. Name the legs of △QRS.

36. Name the base of △QRS.

5

(37.) Name the vertex angle of △QRS.

(38.) Name the base angles of △QRS.

(39.) △ABF is equilateral, and $\overline{AE} \perp \overline{CF}$. Find each measure.

a) $m\angle CFD$ [ ] b) $m\angle BFC$ [ ]

c) $m\angle ABF$ [ ] d) $m\angle A$ [ ]
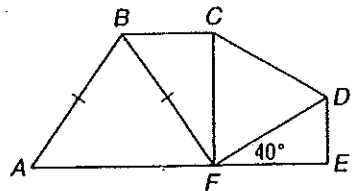
5-4
The Triangle Inequality

(40.) Determine whether the given measures can be the lengths of a triangle. Write *yes* or *no*.

a) 5, 6, 7

b) 6, 8, 10

6-1
Angles of Polygons

(41.) Give the measure of an interior angle and the measure of an exterior angle of each polygon.
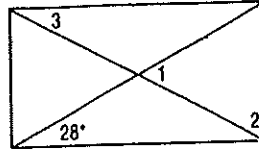
a) equilateral triangle

b) regular hexagon

c) Find the sum of the measures of the interior angles of a convex 20-gon.

(42.) Determine whether there is enough given information to know that each figure is a parallelogram. If so, state the definition or theorem that justifies your conclusion.
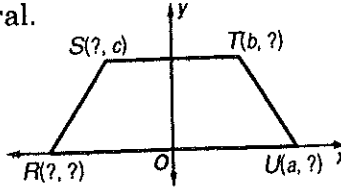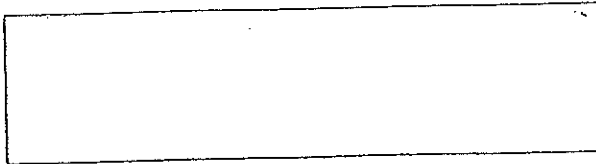
a)

b)
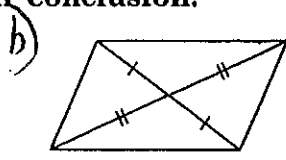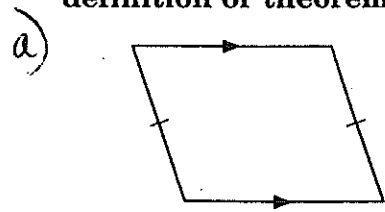
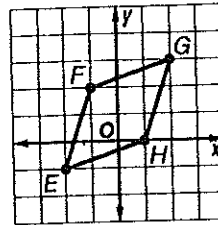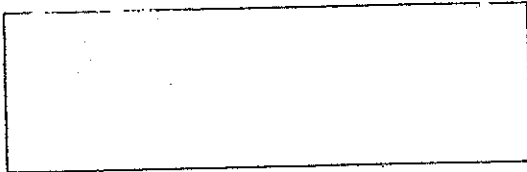**(43.)** Find $m\angle 1$, $m\angle 2$, and $m\angle 3$ in the rectangle shown.

(44.) Find the missing coordinates in the figure. Then write the coordinates of the four vertices of the quadrilateral.
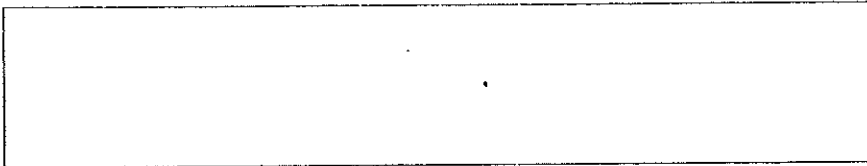

Refer to quadrilateral *EFGH*.
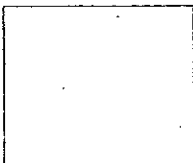
(45.) Find the slope of each side.

Proportions

(46.) **ADVERTISEMENT** A poster measures 10 inches by 14 inches. If it is enlarged to have a width of 60 inches, how tall will the new poster be?
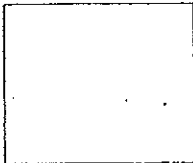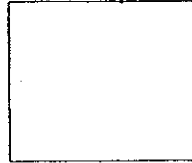
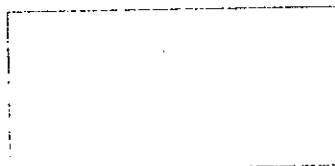**(47.)** Solve each proportion.

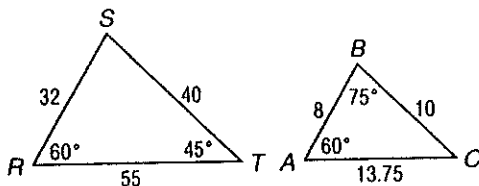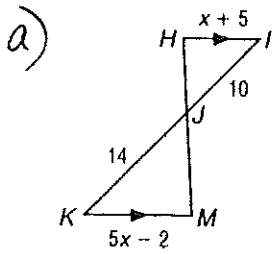a) $\dfrac{3}{8} = \dfrac{x}{40}$

b) $\dfrac{9}{11} = \dfrac{15}{x}$
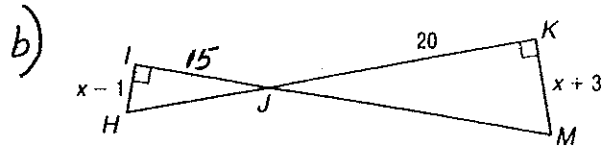
c) $\dfrac{x+2}{5} = \dfrac{4}{3}$

(48.) Determine whether each pair of figures is similar. If so, write the appropriate similarity statement.

49. If $\triangle HIJ \sim \triangle MKJ$, find x and the scale factor of $\triangle HIJ$ to $\triangle MKJ$.

a)

b)

50. SHADOWS A tree casts a 60 foot shadow. At the same time, a 6-foot tall man casts a shadow that is 2 feet long. How tall is the tree?