Name: _____

# Geometry Study Guide -- Midterm Exam

- Review previous Quizzes & Tests in your binder.
- Review Constructions Notes
- Review Vocabulary
- SOL Preparation: JLAB Practice Tests http://education.jlab.org/solquiz/index.html

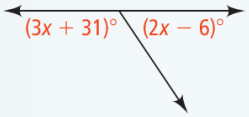
**Chapter 1 Tools of Geometry**

1. Skim Chapter Review beginning on p. 70.
2. Sample problems:

Find the value of $m$.


**Find the value of $x$.**

**24.**




**$\overline{AB}$ has endpoints $A(-3, 2)$ and $B(3, -2)$.**

**33.** Find the coordinates of the midpoint of $\overline{AB}$.

**34.** Find $AB$ to the nearest tenth.

**$M$ is the midpoint of $\overline{JK}$. Find the coordinates of $K$.**

**35.** $J(-8, 4)$, $M(-1, 1)$

**26.** Use a protractor to draw a 73° angle. Then construct an angle congruent to it.

**27.** Use a protractor to draw a 60° angle. Then construct the bisector of the angle.

**For the given dimensions, find the area of each figure. If necessary, round to the nearest hundredth.**

**15.** rectangle with base 4 m and height 2 cm

**16.** square with side length 3.5 in.

**17.** circle with diameter 9 cm

**Chapter 2 Reasoning and Proof**

1. Skim through Chapter Review beginning on p. 129
2. Sample problems:

**Write the converse, inverse, and contrapositive of the given conditional. Then determine the truth value of each statement.**

**18.** If an angle is obtuse, then its measure is greater than 90 and less than 180.

**21.** If you baby-sit, then you are busy on Saturday night.

**Use the Law of Detachment to make a conclusion.**

**27.** If you practice tennis every day, then you will become a better player. Colin practices tennis every day.

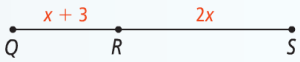
**Use the Law of Syllogism to make a conclusion.**

**29.** If two angles are vertical, then they are congruent. If two angles are congruent, then their measures are equal.

**31. Algebra** Fill in the reason that justifies each step.

**Given:** $QS = 42$

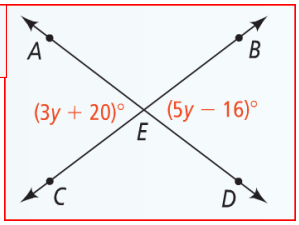
**Prove:** $x = 13$




| Statements | Reasons |
|---|---|
| 1) $QS = 42$ | 1) a. ? |
| 2) $QR + RS = QS$ | 2) b. ? |
| 3) $(x + 3) + 2x = 42$ | 3) c. ? |
| 4) $3x + 3 = 42$ | 4) d. ? |
| 5) $3x = 39$ | 5) e. ? |
| 6) $x = 13$ | 6) f. ? |

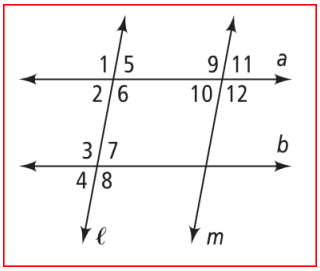
**34.** Find the value of $y$.

**35.** Find $m\angle AEC$.



**Chapter 3 Parallel & Perpendicular Lines**

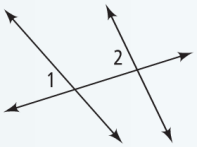
1. Skim Chapter Review beginning on p. 206.
2. Understand the combinations of angles which CAN and which CANNOT prove lines are parallel.



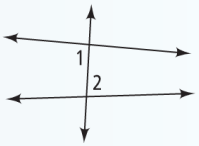

3. Sample problems:

Classify the angle pair formed by ∠1 and ∠2.

**11.**

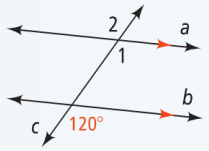



**12.**

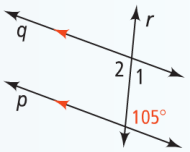



Find $m\angle 1$ and $m\angle 2$. Justify your answers.

**13.**

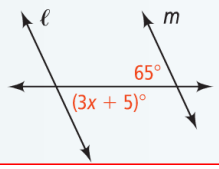



**14.**



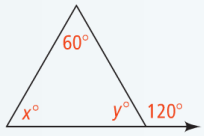

Find the value of $x$ for which $\ell \parallel m$.

**16.**

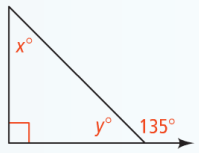



Find the values of the variables.

**25.**




**26.**




**30.** Draw a line $m$ and point $Q$ not on $m$. Construct a line perpendicular to $m$ through $Q$.

Find the slope of the line passing through the points.

**34.** $(6, -2), (1, 3)$ **35.** $(-7, 2), (-7, -5)$

Write an equation of the line.

**38.** slope $-\frac{1}{2}$, $y$-intercept 12

**39.** slope 3, passes through $(1, -9)$

**36.** Name the slope and $y$-intercept of $y = 2x - 1$. Then graph the line.

**37.** Name the slope of and a point on $y - 3 = -2(x + 5)$. Then graph the line.

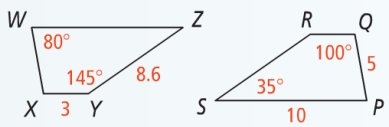
**45.** Write an equation of the line parallel to $y = 8x - 1$ that contains $(-6, 2)$.

**46.** Write an equation of the line perpendicular to $y = \frac{1}{6}x + 4$ that contains $(3, -3)$.

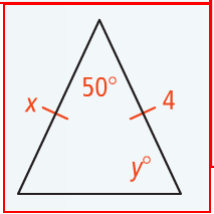
**Chapter 4 Congruent Triangles**

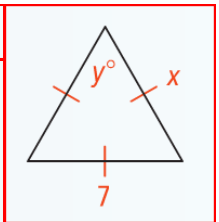
1. Skim through Chapter Review beginning on p. 273
2. Sample problems:

$WXYZ \cong PQRS$. Find each measure or length.



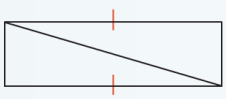

Find the values of $x$ and $y$.



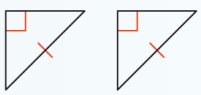




Which postulate or theorem, if any, could you use to prove the two triangles congruent? If there is not enough information to prove the triangles congruent, write *not enough information*.

**17.**



**18.**



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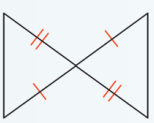
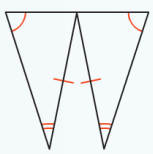


**20.**



**Chapter 5 Relationships within Triangles**

1. Skim Chapter Review beginning on p. 341.
2. Sample problems:

In $\triangle RST$, $m\angle R = 70$ and $m\angle S = 80$. List the sides of $\triangle RST$ in order from shortest to longest.

The lengths of two sides of a triangle are 12 ft and 13 ft. Find the range of possible lengths for the third side.

**Is it possible for a triangle to have sides with the given lengths? Explain.**

**32.** 5 in., 8 in., 15 in.

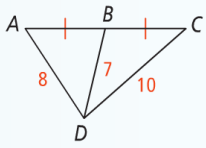
**33.** 10 cm, 12 cm, 20 cm

**Use the figure below. Complete each statement with >, <, or =.**

**35.** $m\angle BAD$ ■ $m\angle ABD$

**36.** $m\angle CBD$ ■ $m\angle BCD$

**37.** $m\angle ABD$ ■ $m\angle CBD$



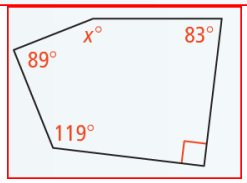

**Chapter 6 Polygons and Quadrilaterals**

1. Skim Chapter Review beginning on p. 420.
2. Sample problems:

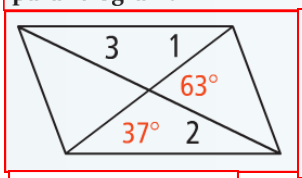
**Find the measure of an interior angle and an exterior angle of each regular polygon.**

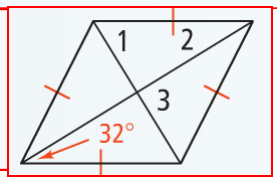
**5.** hexagon **6.** 16-gon **7.** pentagon

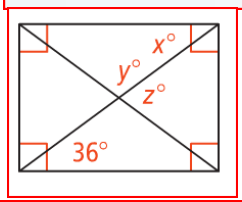
**Find the measure of the missing angle.**




**Find the measures of the numbered angles for each parallelogram.**




**Determine whether each statement is *always*, *sometimes*, or *never* true.**

**23.** A rhombus is a square.

**24.** A square is a rectangle.

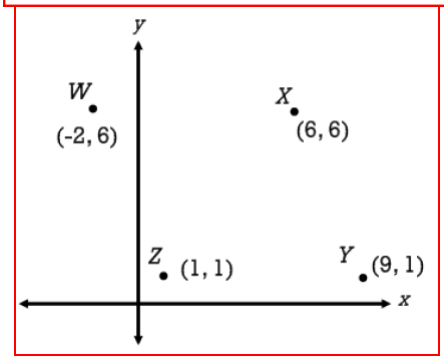
**25.** A rhombus is a rectangle.

**26.** The diagonals of a parallelogram are perpendicular.

**27.** The diagonals of a parallelogram are congruent.

**28.** Opposite angles of a parallelogram are congruent.

In parallelogram $WXYZ$, what are the coordinates of the point of intersection of $\overline{WY}$ and $\overline{ZX}$?




Name all of the special parallelograms that have each property.

**a.** Diagonals are perpendicular.
**b.** Diagonals are congruent.
**c.** Diagonals are angle bisectors.
**d.** Diagonals bisect each other.
**e.** Diagonals are perpendicular bisectors of each other.