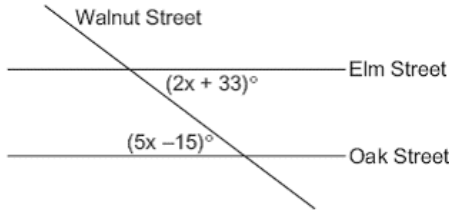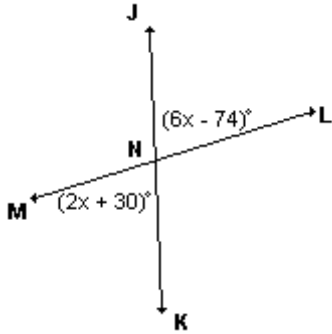# Finding the Measures of Angles

1. Two parallel roads, Elm Street and Oak Street, are crossed by a third, Walnut Street, as shown in the accompanying diagram. Find the number of degrees in the acute angle formed by the intersection of Walnut Street and Elm Street.

2. In the diagram, lines $\overleftrightarrow{JK}$ and $\overleftrightarrow{LM}$ at N, m∠JNL = 6x - 74, and m∠MNK = 2x + 30. What is the value of x and m∠MNK?

3. In the diagram: $\overleftrightarrow{ALB} \parallel \overleftrightarrow{CJD}$ and $\overleftrightarrow{LJ}$ is a transversal. If m∠JLB = 6x - 7 and m∠LJD = 7x + 5, what is the m∠JLB?
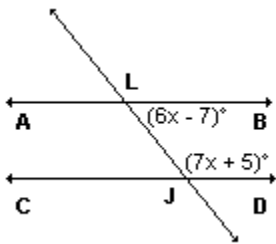
4. ∠A is the supplement of ∠B. If ∠B is 73°, what is m∠A?

Finding the Midpoint of a Segment

1. A line segment has endpoints $A(7,-1)$ and $B(-3,3)$. What are the coordinates of the midpoint of $\overline{AB}$?

2. If a line segment has endpoints $A(3x + 5, 3y)$ and $B(x - 1, -y)$, what are the coordinates of the midpoint of $\overline{AB}$?

3. The coordinates of points C and D are $(-6, 10)$ and $(12, -2)$, respectively. If $\overleftrightarrow{AB}$ bisects $\overline{CD}$ at E, what are the coordinates of point E?

4. The midpoint of $\overline{AB}$ is M. If the coordinates of A are $(2, -6)$ and the coordinates of M are $(5, -1)$, what are the coordinates of B?

Finding the Length of a Segment

1. What is the length of the line segment whose endpoints are (1, 1) and (3, -3) in simplest radical form?

2. What is the length, to the *nearest tenth*, of the line segment joining the points (−4,2) and (146,52)?

3. Triangle *ABC* has coordinates *A*(−6,2), *B*(−3,6), and *C*(5,0). Find the perimeter of the triangle. Express your answer to the *nearest tenth*.

Points, Lines and Planes Postulates

1. Point P is on line m. What is the total number of planes that are perpendicular to line m and pass through point P?

    1. 1
    2. 2
    3. 0
    4. infinite

2. A pair of parallel lines can be the result of which of the following?

    1. The intersection of two planes
    2. The intersection of three planes
    3. The intersection of a plane with two other parallel planes
    4. The intersection of two parallel lines and a plane

3. Lines L and M both make 90° angles with plane B. Which of the following best describes the relationship between the two lines?

    1. They are parallel to one another.
    2. They are coplanar.
    3. They are parallel to one another and coplanar.
    4. They are perpendicular to one another.

4. In plane P, lines m and n intersect at point A. If line k is perpendicular to line m and line n at point A, then line k is

    1. contained in plane P
    2. parallel to plane P
    3. perpendicular to plane P
    4. skew to plane P

5. The intersection of a plane and a line not in the plane can be a

    1. line
    2. point
    3. right angle
    4. none of the above

6. How many non-collinear points are needed to create a plane?

    1. 1
    2. 2
    3. 3
    4. 4

7. Plane P passes through point M on line L. If plane P is perpendicular to line L at point M, then how many other planes can also be perpendicular to line L at point M?
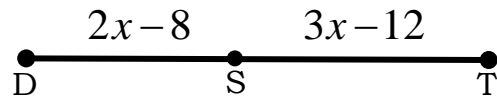
    1. 1
    2. 2
    3. 0
    4. infinite

8. If plane B and plane A are perpendicular and line M is perpendicular to plane A, which statement is true?

    1. Line M is perpendicular to plane B.
    2. Line M is collinear to plane B.
    3. Line M is skew to plane B.
    4. Line M is parallel to plane B.

Segment Addition Postulate

1. If *DT* = *60*, find the value of *x*. Then find *DS* and *ST*

$$2x-8 \qquad 3x-12$$

D   S   T

2. Point *T* is the midpoint of $\overline{PQ}$. If *PT* = *5x* + *3* and *TQ* = *7x* – *9*, find *PT*.

3. Point *T* is the midpoint of $\overline{PQ}$. If *PQ* = *10x* - *6* and *TQ* = *2x* + *15*, find *PT*.

4. Points *X, Y,* and *Z* are collinear with *Y* between *X* and *Z*. Which of the following must be true?

1. *XY* = *XZ*

2. *XY* + *XZ* = *YZ*

3. $XY - YZ = 0$

4. $XZ - XY = YZ$

Constructions

Copy the Angle Below:
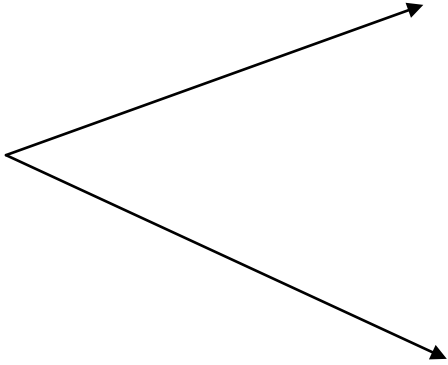
Copy the Segment:

Create an Equilateral Triangle Using the Segment Below: (No Video)

Create the Perpendicular Bisector of the Segment

Create the Bisector of the Angle