

**Chapter 4 Cumulative Test Review**

Indicate the answer choice that best completes the statement or answers the question.

1. Two angles are supplementary. One angle measures  $46^\circ$  more than the other. Find the measure of the two angles.

C

A. 32, 148    B. 74, 106

C. 67, 113    D. 76, 104

$$\begin{aligned} 2x + 46 &= 180 \\ 2x &= 134 \\ x &= 67 \leftarrow 1^{st} \angle \\ 67 + 46 &= 113^\circ \leftarrow 2^{nd} \angle \end{aligned}$$

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

2. Q(8, 11), R(-9, -8)

H

F. (9.5, -8.5)    G. (8.5, 9.5)

H. (-0.5, 1.5)    I. (17, 19)

$$\begin{aligned} &\left( \frac{8 + (-9)}{2}, \frac{11 + (-8)}{2} \right) \\ &= \left( -\frac{1}{2}, \frac{3}{2} \right) \\ &= (-0.5, 1.5) \end{aligned}$$

3. Q(5.3, 9.2), R(1.8, 7.6)

A

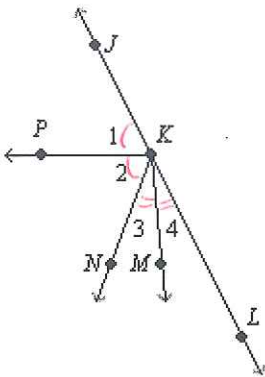
A. (3.55, 8.4)    B. (7.25, 4.7)

C. (3.5, 1.6)    D. (1.75, 0.8)

$$\begin{aligned} &\left( \frac{5.3 + 1.8}{2}, \frac{9.2 + 7.6}{2} \right) \\ &= \left( \frac{7.1}{2}, \frac{16.8}{2} \right) = (3.55, 8.4) \end{aligned}$$

In the figure,  $\overrightarrow{KJ}$  and  $\overrightarrow{KI}$  are opposite rays.  $\angle 1 \cong \angle 2$  and  $\overrightarrow{KM}$  bisects  $\angle NKL$ .

so  $m\angle 3 = m\angle 4$



4. Using the figure above, if  $\angle JKN$  is a right angle and the measure of angle 4 =  $5(2x-3)$  what is x?

H

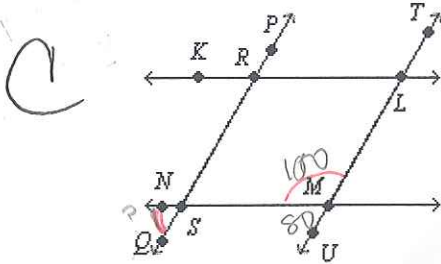
F. 5    G. 45

H. 6    I. 3

$$\begin{aligned} 5(2x-3) &= 45 \\ 2x-3 &= 9 \\ 2x &= 12 \\ x &= 6 \end{aligned}$$

**Chapter 4 Cumulative Test Review**

5. In the figure, the measure of angle  $NML = 100^\circ$ ,  $\overleftrightarrow{PQ} \parallel \overleftrightarrow{TU}$  and  $\overleftrightarrow{KL} \parallel \overleftrightarrow{NM}$ . Find the measure of angle  $QSN$ .



$m\angle QSN = 80^\circ$

- A. 120    B. 60

- C. 80    D. 100

Determine whether  $\overleftrightarrow{WX}$  and  $\overleftrightarrow{YZ}$  are parallel, perpendicular, or neither.

6.  $W(-4, 5), X(6, 1)$                        $Y(-1, 6), Z(5, 3)$

- F. parallel  
 G. neither  
 H. perpendicular

$$m_{WX} = \frac{5-1}{-4-6} = \frac{4}{-10} = -\frac{2}{5}$$

$$m_{YZ} = \frac{6-3}{-1-5} = \frac{3}{-6} = -\frac{1}{2}$$

Determine the slope of the line that contains the given points.

7.  $T(4, 4), V(8, 7)$

- A.  $\frac{4}{3}$     B.  $-\frac{4}{3}$   
 C. -1    D.  $\frac{3}{4}$

$$\frac{7-4}{8-4} = \frac{3}{4}$$

8. Find the value of the variable and  $LM$  if  $M$  is between  $L$  and  $N$ .

Hint: draw segment  $LN$  and put  $M$  between  $L$  and  $N$  to "see" the equation.

$$LM = 8a, MN = 5a, LN = 65$$

- F.  $a = 21.7, LM = 65$     G.  $a = 7, LM = 72$

- H.  $a = 5, LM = 25$     I.  $a = 5, LM = 40$

$$8a + 5a = 65$$

$$13a = 65$$

$$a = \frac{65}{13} = 5$$

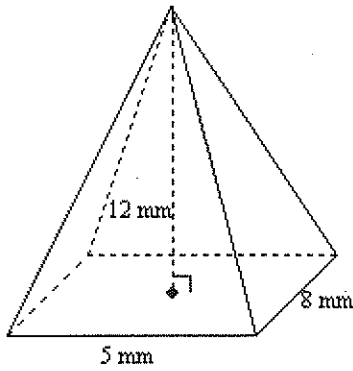
$$LM = 8(5) = 40$$

**Chapter 4 Cumulative Test Review**

Find the volume of the solid.

9.

D



$$V = \frac{1}{3} (\text{Area of Base}) \text{ height}$$

$$V = \frac{1}{3} (5 \cdot 8) 12$$

$$V = 160 \text{ mm}^3$$

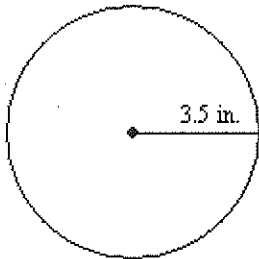
A.  $128 \text{ mm}^3$       B.  $480 \text{ mm}^3$

C.  $157.3 \text{ mm}^3$       **D.  $160 \text{ mm}^3$**

Find the circumference of the figure.

10.

$\pi$



$$C = 2 \cdot \text{radius} \cdot \pi$$

$$= 2(3.5) \pi$$

$$\approx 22.0$$

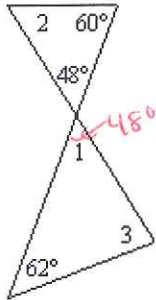
**F. about 22 in.**      G. about 11 in.

H. about 7 in.      I. about 38.5 in.

**Chapter 4 Cumulative Test Review**

Find each measure.

11.  $m\angle 1$ ,  $m\angle 2$ ,  $m\angle 3$



$m\angle 1 = 48^\circ$  Vertical  $\angle$ s are equal

$m\angle 2 + 60 + 48 = 180$  Triangle Sum Thm

$m\angle 2 + 108 = 180$

$m\angle 2 = 72^\circ$

$m\angle 3 + 62 + 48 = 180$  Triangle Sum Thm

$m\angle 3 + 110 = 180$

$m\angle 3 = 70^\circ$

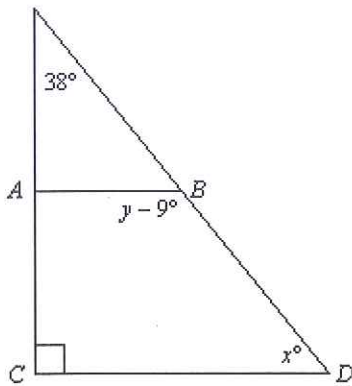
A.  $m\angle 1 = 62$ ,  $m\angle 2 = 48$ ,  $m\angle 3 = 56$

B.  $m\angle 1 = 62$ ,  $m\angle 2 = 72$ ,  $m\angle 3 = 56$

C.  $m\angle 1 = 48$ ,  $m\angle 2 = 72$ ,  $m\angle 3 = 70$

D.  $m\angle 1 = 48$ ,  $m\angle 2 = 60$ ,  $m\angle 3 = 62$

12. In the figure,  $\overline{AB} \parallel \overline{CD}$ . Find  $x$  and  $y$ .



$90 + 38 + x = 180^\circ$  Triangle Sum Thm

$128 + x = 180$   
 $-128$                        $-128$

$x = 52^\circ$

$m\angle ABD + m\angle D = 180$

$y - 9 + 52 = 180$

$y + 43 = 180$   
 $-43$                        $-43$

$y = 137$

Same Side Interior  $\angle$ s are supplementary

F.  $x = 32$ ,  $y = 137$

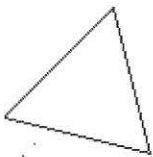
G.  $x = 38$ ,  $y = 151$

H.  $x = 52$ ,  $y = 137$

I.  $x = 137$ ,  $y = 52$

Classify the triangle as acute, equiangular, obtuse, or right.

13.



A. right

B. equiangular and obtuse

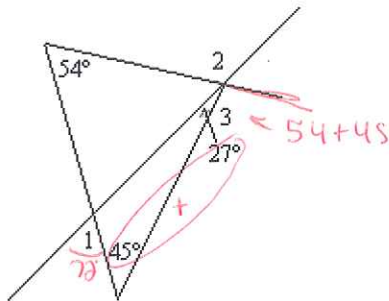
C. equiangular and acute

D. obtuse

**Chapter 4 Cumulative Test Review**

Find each measure.

14.  $m\angle 1$ ,  $m\angle 2$ ,  $m\angle 3$



$m\angle 1 = 27 + 45 = 72^\circ$  Exterior  $\angle$  thm  
 $m\angle 3 = 99^\circ$  Exterior  $\angle$  thm  
 $m\angle 2 = 99 + 27 = 126^\circ$  Vertical  $\angle$ 's are equal

F.  $m\angle 1 = 45$ ,  $m\angle 2 = 126$ ,  $m\angle 3 = 126$

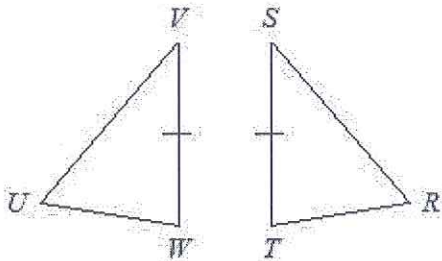
G.  $m\angle 1 = 72$ ,  $m\angle 2 = 153$ ,  $m\angle 3 = 72$

H.  $m\angle 1 = 72$ ,  $m\angle 2 = 126$ ,  $m\angle 3 = 99$

I.  $m\angle 1 = 54$ ,  $m\angle 2 = 99$ ,  $m\angle 3 = 99$

Identify the congruent triangles in the figure.

15.



$\angle V \cong \angle S$   
 $\angle W \cong \angle T$   
 $\angle U \cong \angle R$

A.  $\triangle SRT \cong \triangle WUV$

B.  $\triangle RST \cong \triangle WVU$

C.  $\triangle TRS \cong \triangle WUV$

D.  $\triangle STR \cong \triangle WVU$

Write an equation in point-slope form of the line having the given slope that contains the given point.

16.  $m = 5$ ,  $(4, 3)$

F.  $y = 5x - 1$

G.  $y - 5 = 3(x - 4)$

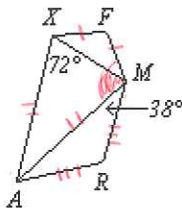
H.  $y - 4 = 5(x - 3)$

I.  $y - 3 = 5(x - 4)$

$y - y_1 = m(x - x_1)$

$y - 3 = 5(x - 4)$

Refer to the figure.  $\triangle ARM$ ,  $\triangle MAX$ , and  $\triangle XFM$  are all isosceles triangles.



17. What is  $m\angle AMX$ ?

A. 80    B. 38

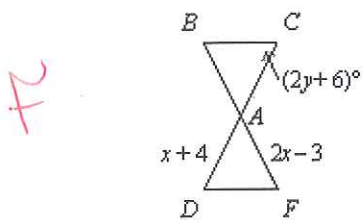
C. 64    D. 72

$m\angle AMX = m\angle AXM$  b/c isosceles  
 base angles are equal

So  $m\angle AMX = 72^\circ$

**Chapter 4 Cumulative Test Review**

18. Triangles  $ABC$  and  $AFD$  are vertical congruent equilateral triangles. Find  $x$  and  $y$ .



all sides equal  
all angles =  $60^\circ$

$$\begin{array}{r} 2y + 6 = 60 \\ -6 \quad -6 \\ \hline \end{array}$$

$$\frac{2y}{2} = \frac{54}{2}$$

$$\boxed{y = 27}$$

F.  $x = 7, y = 27$

G.  $x = \frac{7}{3}, y = 27$

H.  $x = \frac{7}{3}, y = 28$

I.  $x = 7, y = 33$

$$\begin{array}{r} x + 4 = 2x - 3 \\ -x \quad -x \\ \hline \end{array}$$

$$\begin{array}{r} 4 = x - 3 \\ +3 \quad +3 \\ \hline \end{array}$$

$$\boxed{7 = x}$$