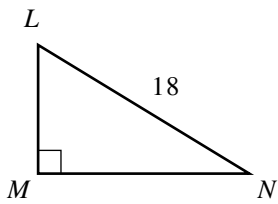




## Mini-Test 3

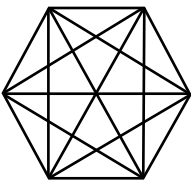
DO YOUR FIGURING HERE.

21. The hypotenuse of the right triangle  $\triangle LMN$  shown below is 18 feet long. The sine of angle  $L$  is  $\frac{5}{6}$ . About how many feet long is line segment  $\overline{MN}$ ?

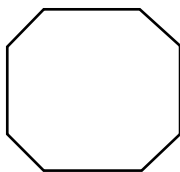


- A. 11  
 B. 12  
 C. 15  
 D. 18  
 E. Cannot be determined from the given information
22. If  $x = 3t - 8$  and  $y = 4 + t$ , which of the following equations expresses  $y$  in terms of  $x$ ?
- F.  $y = 4x - 4$
- G.  $y = \frac{x - 20}{3}$
- H.  $y = \frac{x + 3}{20}$
- J.  $y = \frac{x}{3 - 4}$
- K.  $y = \frac{x + 20}{3}$
23. Hexagons have 9 diagonals, as illustrated below. How many diagonals do octagons have?

Hexagon



Octagon



- A. 8  
 B. 16  
 C. 20  
 D. 32  
 E. 40

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**DO YOUR FIGURING HERE.**

24. Jennifer wants to draw a circle graph showing the favorite candies of her friends. When she polled her friends, asking each his or her favorite candy, 30% of her friends said chocolate, 25% of her friends said peppermint, 15% of her friends said licorice, 15% of her friends said gum, and the remaining friends said some other type of candy. If she groups the other candies chosen by the remaining friends in the same sector, what will the degree measure of this sector be?
- F.  $12^\circ$   
 G.  $24^\circ$   
 H.  $26^\circ$   
 J.  $48^\circ$   
 K.  $54^\circ$

25. The number of students participating in afterschool programs at a certain high school can be shown by the following matrix.

Quizbowl	Band	Chorus	Debate
[ 30	60	40	30 ]

The principal estimates the ratio of the number of program awards that will be earned to the number of students participating with the following matrix.

Quizbowl	]
Band	
Chorus	
Debate	

Given this data, what is the principal's estimate of the number of program awards that will be earned for these afterschool programs?

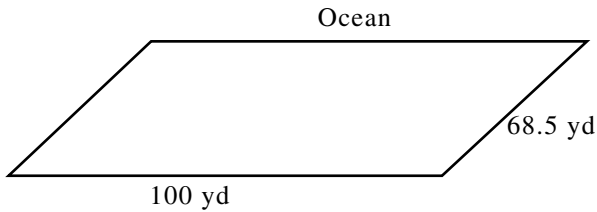
- A. 60  
 B. 56  
 C. 52  
 D. 48  
 E. 36

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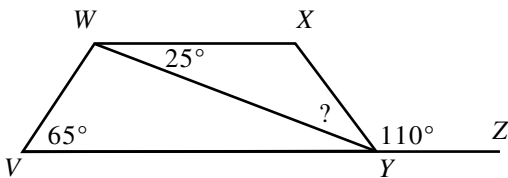


26. After a hurricane, coastal workers removed an estimated 8,000 cubic yards of sand from the downtown area. If this sand was spread in an even layer over a rectangular segment of beach, as shown below, about how many yards deep would the new layer of sand be?



- F. Less than 1  
 G. Between 1 and 2  
 H. Between 2 and 3  
 J. Between 3 and 4  
 K. More than 4
27. What is the distance in the standard  $(x,y)$  coordinate plane between points  $(1,2)$  and  $(4,6)$  ?
- A. 4  
 B. 5  
 C. 7  
 D. 10  
 E. 13

28. In the figure below,  $VWXY$  is a trapezoid,  $Z$  lies on line  $\overline{VY}$ , and angle measures are as marked. What is the measure of  $\angle WYX$  ?



- F.  $25^\circ$   
 G.  $30^\circ$   
 H.  $45^\circ$   
 J.  $55^\circ$   
 K.  $65^\circ$

**DO YOUR FIGURING HERE.**

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29. In the set of complex numbers, where  $i^2 = -1$ ,

$$\frac{i}{i-1} \cdot \frac{i+1}{i+1} = ?$$

A.  $-i$

B.  $\frac{i}{-2}$

C.  $\frac{i-1}{-2}$

D.  $\frac{1}{-2}$

E.  $\frac{i^2 + i}{i^2 - 2i - 1}$

**DO YOUR FIGURING HERE.**

30. If  $f(x) = x^2 + x + 4$ , then  $f(x + h) =$

F.  $x^2 + x + h^2 + h + 4$

G.  $x^2 + x + 2h + 4$

H.  $x^2 + 2xh + x + h^2 + h + 4$

J.  $x^2 + x + h + 4$

K.  $h^2 + h + 2x + 4$

**END OF MINI-TEST THREE**

**STOP! DO NOT GO ON TO THE NEXT PAGE  
UNTIL TOLD TO DO SO.**

