

# ALG 2 BELLWORK TUE. FEBRUARY 24, 2015

31. Meg pounded a stake into the ground. When she attached a leash to both the stake and her dog's collar, the dog could reach 9 feet from the stake in any direction. Using 3.14 for  $\pi$ , what is the approximate area of the lawn, in square feet, the dog could reach from the stake?

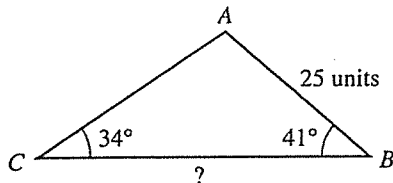
A. 28  
B. 57  
C. 113  
D. 254  
E. 283

32. Television screen sizes are the diagonal length of the rectangular screen. Hector recently changed from watching a television with a 13-inch screen to a television with a similar 19-inch screen. If a boxcar appeared 8 inches long on the 13-inch screen, how long, to the nearest inch, will it appear on the 19-inch screen?

~~A~~F. 10  
~~B~~G. 12  
~~C~~H. 14  
~~D~~J. 16  
~~E~~K. 18

45. In  $\triangle ABC$ , shown below, the measure of  $\angle B$  is  $41^\circ$ , the measure of  $\angle C$  is  $34^\circ$ , and  $\overline{AB}$  is 25 units long. Which of the following is an expression for the length, in units, of  $\overline{BC}$ ?

(Note: The law of sines states that, for any triangle, the ratios of the sines of the interior angles to the lengths of the sides opposite those angles are equal.)



- A.  $\frac{25 \sin 105^\circ}{\sin 41^\circ}$   
B.  $\frac{25 \sin 105^\circ}{\sin 34^\circ}$   
C.  $\frac{25 \sin 75^\circ}{\sin 41^\circ}$   
D.  $\frac{25 \sin 41^\circ}{\sin 105^\circ}$   
E.  $\frac{25 \sin 34^\circ}{\sin 75^\circ}$

46. For  $i^2 = -1$ ,  $(4 + i)^2 = ?$

~~A~~F. 15  
~~B~~G. 17  
~~C~~H.  $15 + 4i$   
~~D~~J.  $15 + 8i$   
~~E~~K.  $16 + 4i$

47. If  $r$  and  $s$  can be any integers such that  $s > 10$  and  $2r + s = 15$ , which of the following is the solution set for  $r$ ?

A.  $r \geq 3$   
B.  $r \geq 0$   
C.  $r \geq 2$   
D.  $r \leq 0$   
E.  $r \leq 2$

48. Which of the following expressions has a positive value for all  $x$  and  $y$  such that  $x > 0$  and  $y < 0$ ?

~~A~~F.  $y - x$   
~~B~~G.  $x + y$   
~~C~~H.  $x^3y$   
~~D~~J.  $\frac{x^2}{y}$   
~~E~~K.  $\frac{x}{y^2}$

ACT-59F-PRACTICE

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## Answers

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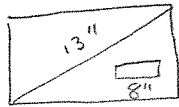
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B. 57  
C. 113  
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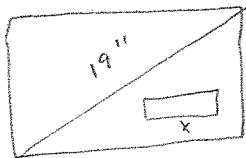
$$A = \pi r^2 \\ = 3.14(9)^2 \\ = 254.34$$

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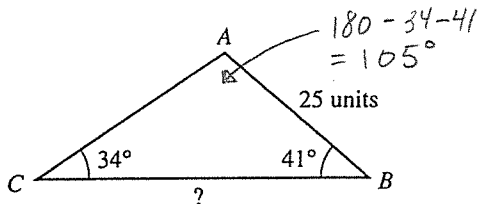
$$\frac{13}{8} = \frac{19}{x}$$



$$x = 11.69$$

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B.  $\frac{25 \sin 105^\circ}{\sin 34^\circ}$

C.  $\frac{25 \sin 75^\circ}{\sin 41^\circ}$

D.  $\frac{25 \sin 41^\circ}{\sin 105^\circ}$

E.  $\frac{25 \sin 34^\circ}{\sin 75^\circ}$

$$\frac{\sin 105^\circ}{x} = \frac{\sin 34^\circ}{25}$$

$$\frac{25 \cdot \sin 105^\circ}{\sin 34^\circ} = \frac{x \sin 34^\circ}{\sin 34^\circ}$$

46. For  $i^2 = -1$ ,  $(4 + i)^2 = ?$

A. 15  
B. 17  
C.  $15 + 4i$   
D.  $15 + 8i$   
E.  $16 + 4i$

$$\begin{array}{r} 4 + i \\ 4 \quad | \quad 16 \quad | \quad 4i \\ + i \quad | \quad 4i \quad | \quad + i^2 = -1 \\ \hline 15 + 8i \end{array}$$

47. If  $r$  and  $s$  can be any integers such that  $s > 10$  and  $2r + s = 15$ , which of the following is the solution set for  $r$ ?

A.  $r \geq 3$   
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C.  $r \geq 2$   
D.  $r \leq 0$   
E.  $r \leq 2$

$$\text{if } s > 10$$

$$2r < 5$$

$$r < 2.5 \rightarrow r \leq 2$$

48. Which of the following expressions has a positive value for all  $x$  and  $y$  such that  $x > 0$  and  $y < 0$ ?

A.  $y - x$   $(-) - (+) = -$

B.  $x + y$   $(+) + (-)$  could be neg

C.  $x^3 y$   $(+)(-) = -$

D.  $\frac{x^2}{y}$   $\frac{+}{-} = -$

E.  $\frac{x}{y^2}$   $\frac{+}{+} = +$