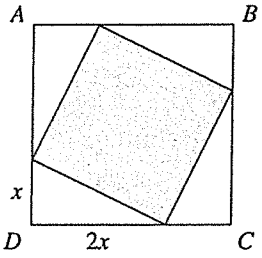
ALG BELLWORK 2-13-15

2 △ △ △ △ △ △ △ △ △ 2

33. In the figure below, $ABCD$ is a square. Points are chosen on each pair of adjacent sides of $ABCD$ to form 4 congruent right triangles, as shown below. Each of these has one leg that is twice as long as the other leg. What fraction of the area of square $ABCD$ is shaded?



A. $\frac{1}{9}$

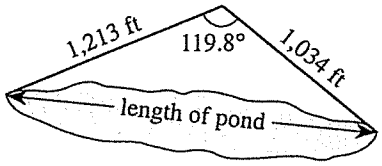
B. $\frac{2}{9}$

C. $\frac{4}{9}$

D. $\frac{5}{9}$

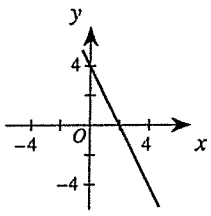
E. $\frac{8}{9}$

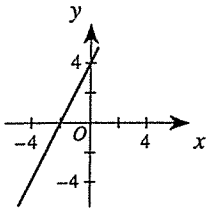
34. A surveyor took and recorded the measurements shown in the figure below. If the surveyor wants to use these 3 measurements to calculate the length of the pond, which of the following would be the most directly applicable?

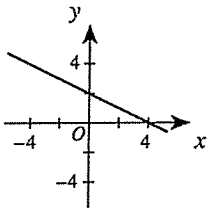


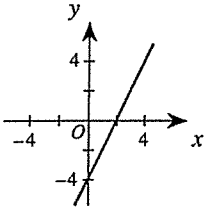
F. The Pythagorean theorem
G. A formula for the area of a triangle
H. The ratios for the side lengths of 30°-60°-90° triangles
J. The ratios for the side lengths of 45°-45°-90° triangles
K. The law of cosines: For any ΔABC, where a is the length of the side opposite $\angle A$, b is the length of the side opposite $\angle B$, and c is the length of the side opposite $\angle C$, $a^2 = b^2 + c^2 - 2bc\cos(\angle A)$

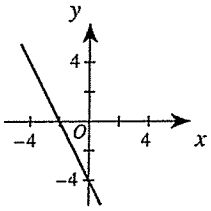
35. Which of the following is the graph of the equation $2x + y = 4$ in the standard (x,y) coordinate plane?

A.


D.


B.


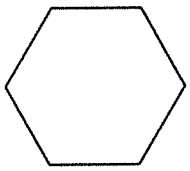
E.


C.


36. Which of the following figures in a plane separates it into half-planes?

F. A line
G. A ray
H. An angle
J. A point
K. A line segment

37. What is the maximum number of distinct diagonals that can be drawn in the hexagon shown below?

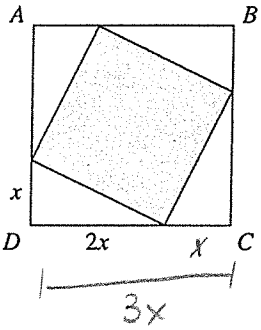


A. 4
B. 5
C. 6
D. 9
E. 12

ALG 2 Bellwork 2-13-15 ANSWERS

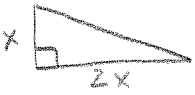
2 △ △ △ △ △ △ △ △ △ 2

33. In the figure below, $ABCD$ is a square. Points are chosen on each pair of adjacent sides of $ABCD$ to form 4 congruent right triangles, as shown below. Each of these has one leg that is twice as long as the other leg. What fraction of the area of square $ABCD$ is shaded?



A. $\frac{1}{9}$
B. $\frac{2}{9}$
C. $\frac{4}{9}$
D. $\frac{5}{9}$
E. $\frac{8}{9}$

TOTAL area: Area of ABCD $A = (3x)^2 = 9x^2$



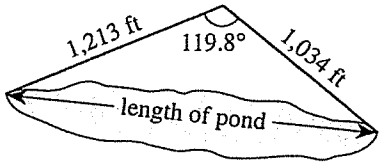
Area of this $\triangle$: $A = \frac{1}{2}(2x)(x) = x^2$

Area of 4 corners $= 4x^2$

Area of shaded: Sq − 4 corners $= 9x^2 - 4x^2 = 5x^2$

shaded / TOTAL $\frac{5x^2}{9x^2}$

34. A surveyor took and recorded the measurements shown in the figure below. If the surveyor wants to use these 3 measurements to calculate the length of the pond, which of the following would be the most directly applicable?



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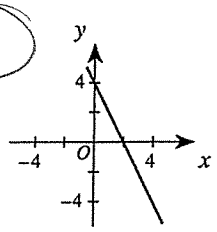
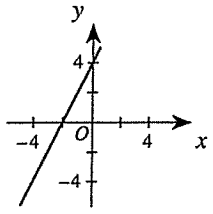
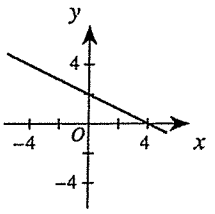
G. A formula for the area of a triangle
H. The ratios for the side lengths of 30°-60°-90° triangles
J. The ratios for the side lengths of 45°-45°-90° triangles
K. The law of cosines: For any $\triangle ABC$, where a is the length of the side opposite $\angle A$, b is the length of the side opposite $\angle B$, and c is the length of the side opposite $\angle C$, $a^2 = b^2 + c^2 - 2bc\cos(\angle A)$

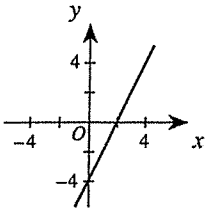
By process of elimination

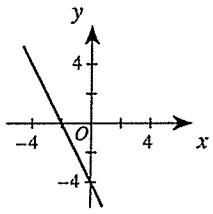
35. Which of the following is the graph of the equation $2x + y = 4$ in the standard (x,y) coordinate plane?

A.


D.


B.


E.


C.


$y = -2x + 4$

36. Which of the following figures in a plane separates it into half-planes?

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H. An angle
J. A point
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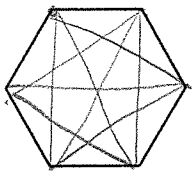

$\frac{n \cdot (n-3)}{2}$

A. 4
B. 5
C. 6
D. 9
E. 12

$\frac{6 \cdot 3}{2} = 9$