MAT1033C Intermediate Algebra
Chapter 8 Test Review
McCarthy

Name_____
CRN _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the equation.

1) $x^2 - 3 = 0$ 1) _____

A) $\frac{3}{2}$ B) $-\sqrt{3}, \sqrt{3}$ C) $\sqrt{3}$ D) 9

2) $x^2 + 49 = 0$ 2) _____

A) $-7, 7$ B) $-7i, 7i$ C) 7 D) 2401

3) $3x^2 - 33 = 0$ 3) _____

A) 12 B) $-11, 11$ C) $-\sqrt{11}, \sqrt{11}$ D) 16.5

Solve the equation.

4) $x^2 + 16x + 47 = 0$ 4) _____

A) $-8 - \sqrt{17}, -8 + \sqrt{17}$ B) $-16 + \sqrt{47}$

C) $8 - \sqrt{47}, 8 + \sqrt{47}$ D) $8 + \sqrt{17}$

5) $x^2 + 5x - 5 = 0$ 5) _____

A) $\frac{-5 - 3\sqrt{5}}{2}, \frac{-5 + 3\sqrt{5}}{2}$ B) $-5 - 3\sqrt{5}, -5 + 3\sqrt{5}$

C) $\frac{-5 - 3\sqrt{5}}{2}$ D) $\frac{5 + 3\sqrt{5}}{2}$

6) $9x^2 + 36x + 32 = 0$ 6) _____

A) $-\frac{4}{9}, -\frac{8}{9}$ B) $-\frac{8}{9}, \frac{40}{9}$ C) $-\frac{4}{3}, -\frac{8}{3}$ D) $\frac{4}{3}, \frac{8}{3}$

Use the quadratic formula to solve the equation.

7) $2x^2 - 7x - 9 = 0$ 7) _____

A) $\frac{2}{9}, 1$ B) $\frac{2}{9}, -1$ C) $\frac{2}{9}, 0$ D) $\frac{9}{2}, -1$

8) $6x^2 = -10x - 1$ 8) _____

A) $\frac{-10 - \sqrt{19}}{6}, \frac{-10 + \sqrt{19}}{6}$ B) $\frac{-5 - \sqrt{19}}{12}, \frac{-5 + \sqrt{19}}{12}$

C) $\frac{-5 - \sqrt{19}}{6}, \frac{-5 + \sqrt{19}}{6}$ D) $\frac{-5 - \sqrt{31}}{6}, \frac{-5 + \sqrt{31}}{6}$

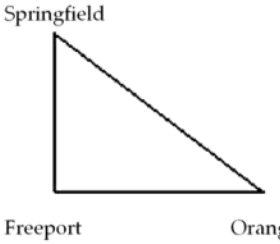
9) $2x^2 + 10x + 7 = 0$ 9) _____

A) $\frac{-5-\sqrt{39}}{2}, \frac{-5+\sqrt{39}}{2}$ B) $\frac{-5-\sqrt{11}}{2}, \frac{-5+\sqrt{11}}{2}$

C) $\frac{-10-\sqrt{11}}{2}, \frac{-10+\sqrt{11}}{2}$ D) $\frac{-5-\sqrt{11}}{4}, \frac{-5+\sqrt{11}}{4}$

Solve.

10) Because of the increase in traffic between Springfield and Orangeville, a new road was built to connect the two towns. The old road goes south x miles from Springfield to Freeport and then goes east x + 5 miles from Freeport to Orangeville. The new road is 7 miles long and goes straight from Springfield to Orangeville. Find the number of miles that a person saves by driving the new road over the old one. 10) _____

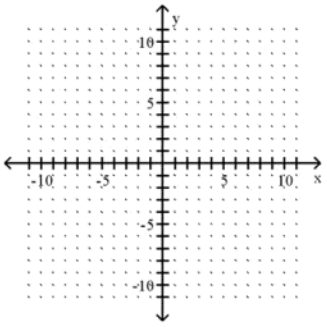


A) $(\sqrt{73} - 7)$ mi B) $(\sqrt{73} + 7)$ mi C) $\left(\frac{5}{2} + \frac{\sqrt{73}}{2}\right)$ mi D) $\left(-\frac{5}{2} + \frac{\sqrt{73}}{2}\right)$ mi

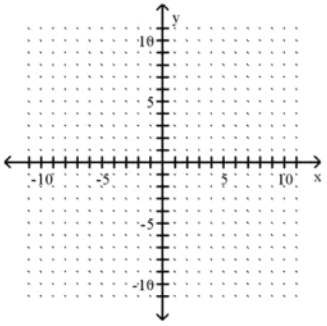
SHORT ANSWER. Show all your work and circle your final answer.

Graph the function. Identify the vertex and axis of symmetry.

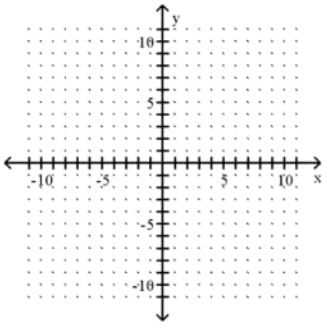
11) $f(x) = -x^2 + 5$ 11) _____



12) $f(x) = -3(x - 3)^2 + 4$ 12) _____



13) $f(x) = \frac{1}{5}(x + 4)^2 - 1$ 13) _____



MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve.

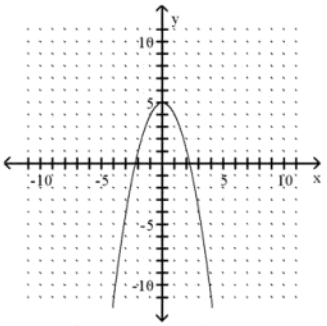
14) An arrow is fired into the air with an initial velocity of 128 feet per second. The height in feet of the arrow t seconds after it was shot into the air is given by the function $h(t) = -16t^2 + 128t$. Find the maximum height of the arrow. 14) _____

A) 448 ft B) 64 ft C) 256 ft D) 768 ft

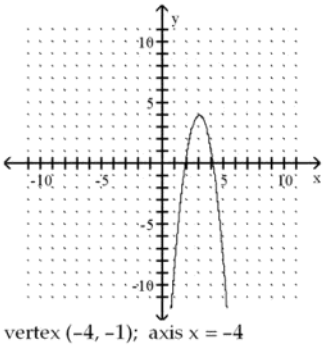
15) The hypotenuse of a right triangle is 15 feet long. One leg of the triangle is 5 feet longer then the other leg. Find the perimeter of the triangle. 15) _____

A) $\left(-\frac{5}{2} + \frac{5\sqrt{17}}{2}\right)$ ft B) $(5\sqrt{17} - 15)$ ft C) $\left(\frac{5}{2} + \frac{5\sqrt{17}}{2}\right)$ ft D) $(5\sqrt{17} + 15)$ ft

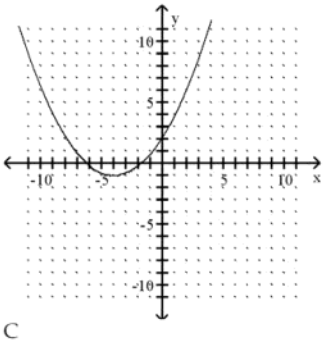
1) B
2) B
3) C
4) A
5) A
6) C
7) D
8) C
9) B
10) A
11) vertex (0, 5); axis x = 0



12) vertex (3, 4); axis x = 3



13) vertex (–4, –1); axis x = –4



14) C

15) D