

Disclaimer: The actual exam differs and work must be shown correctly to receive credit.

Solve.

1) $2x^2 = 22$

1) _____

2) $(x + 3)^2 = 12$

2) _____

3) $9x^2 + 16 = 0$

3) _____

4) $64x^2 + 49 = 0$

4) _____

5) $\left(x + \frac{4}{5}\right)^2 = \frac{22}{25}$

5) _____

6) Let $f(x) = (x + 1)^2$. Find x so that $f(x) = 42$.

6) _____

7) Let $f(x) = (x + 7)^2$. Find x so that $f(x) = 50$.

7) _____

Complete the square. Then write the trinomial square in factored form.

8) $x^2 - 4x$

8) _____

Complete the square. Then write the trinomial square in factored form. This is not an equation!

9) $x^2 + 5x$

9) _____

Complete the square. Then write the trinomial square in factored form.

10) $x^2 - \frac{2}{3}x$

10) _____

Solve by completing the square.

11) $p^2 + 5p - 5 = 0$

11) _____

12) $p^2 + 3p - 9 = 0$

12) _____

13) $2x^2 + 7x + 3 = 0$

13) _____

Complete the square to find the x-intercepts of the function.

14) $f(x) = x^2 + 8x - 3$

14) _____

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

15) _____

Solve by COMPLETING THE SQUARE

16) $4m^2 + 10m + 3 = 0$

16) _____

Solve.

17) $26m^2 + 102m + 55 = 0$

17) _____

18) SOLVE ANY APPROPRIATE WAY $7 = -\frac{12}{x} - \frac{1}{x^2}$.

18) _____

19) $\frac{2}{x} + \frac{2}{x+3} = 1$

19) _____

20) $x^2 - 8x + 65 = 0$

20) _____

21) $5x(x+3) - 44 = 4x(x+2)$

21) _____

22) SOLVE USING THE QUADRATIC FORMULA $7x(x+5) + 30 = 3x(x+3)$

22) _____

23) $x^3 - 8$

23) _____

24) Let $f(x) = \frac{8}{x} + \frac{8}{x+5}$. Find x so that $f(x) = 1$.

24) _____

Use the discriminant to determine whether the following equations have solutions that are: two different rational solutions; two different irrational solutions; exactly one rational solution; or two different imaginary solutions.

25) $v^2 - 2v - 6 = 0$

25) _____

26) $w^2 - 3w + 3 = 0$

26) _____

27) $8y^2 = 2y - 5$

27) _____

Write a quadratic equation having the given numbers as solutions.

28) 5, 5

28) _____

29) $\frac{5}{3}, -\frac{6}{5}$

29) _____

Write a quadratic equation having the given numbers as solutions. Write the equation so it has only integer coefficients

30) $-\frac{10}{3}, -7$ 30) _____

Write a quadratic equation having the given numbers as solutions.

31) 4, only solution 31) _____

32) 6, only solution 32) _____

33) $2i, -2i$ 33) _____

Solve the problem.

34) Working together, Rick and Juanita can complete a job in 6 hours. It would take Rick 9 hours longer than Juanita to do the job alone. How long would it take Juanita alone? 34) _____

35) Bill can row 3 mph in still water. It takes him 3 hours 36 minutes to go 3 miles upstream and return. Find the speed of the current. 35) _____

36) Sue rowed her boat across Lake Bend and back in 3 hours. If her rate returning was 2 mph less than the rate going, and if the distance each way was 7 miles, find her rate going. 36) _____

37) A ball is thrown downward from a window in a tall building. The distance traveled by the ball in t seconds is $s = 16t^2 + 32t$, where s is in feet. How long (to the nearest tenth) will it take the ball to fall 206 feet? 37) _____

Solve.

38) $(k + 4)^{2/3} + 6(k + 4)^{1/3} + 8 = 0$ 38) _____

39) $6x^{2/5} + 14x^{1/5} + 8 = 0$ 39) _____

40) $x^4 - 14x^2 + 45 = 0$ 40) _____

41) $x^4 - 9x^2 + 8 = 0$ 41) _____

42) $(x^2 - 4)^2 - 13(x^2 - 4) + 42 = 0$ 42) _____

43) $(x^2 - 4)^2 - 9(x^2 - 4) + 14 = 0$ 43) _____

Find the x-intercepts of the graph of the function.

44) $f(x) = x^{2/5} + x^{1/5} - 20$

44) _____

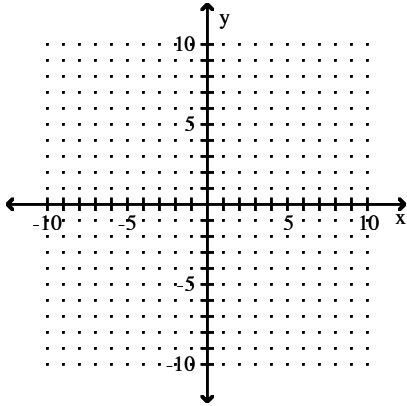
45) $f(x) = x^{1/2} - x^{1/4} - 72$

45) _____

Graph. Label the vertex and at least one other point on the graph.

46) $f(x) = -2x^2$

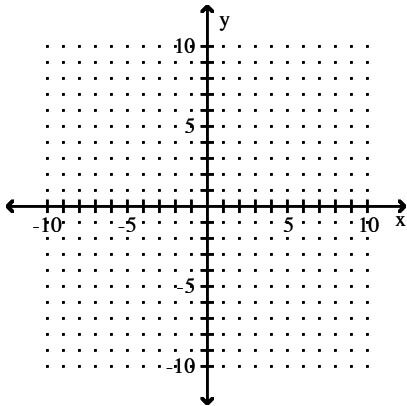
46) _____



Graph. LABEL AT LEAST TWO POINTS ON THE GRAPH.

47) $f(x) = -5x^2$

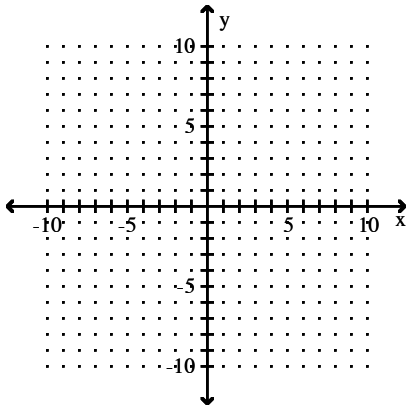
47) _____



Graph.

48) $f(x) = (x + 5)^2$

48) _____



Without graphing, find the vertex.

49) $f(x) = -(x + 2)^2 + 2$

49) _____

50) $f(x) = -(x + 1)^2 + 7$

50) _____

51) $f(x) = -\frac{20}{3}(x - 20)^2 + 3$

51) _____

52) $f(x) = 2\left(x + \frac{1}{6}\right)^2 + 15$

52) _____

Find the axis of symmetry of the graph of the parabola.

53) $f(x) = (x - 3)^2 + 3$

53) _____

54) $f(x) = -(x + 2)^2 + 8$

54) _____

55) $f(x) = -(x + 7)^2 - 4$

55) _____

Without graphing, find the maximum value or minimum value.

56) $f(x) = (x + 3)^2 - 6$

56) _____

57) $f(x) = -(x - 3)^2 + 3$

57) _____

58) $f(x) = -(x + 1)^2 - 8$

58) _____

Complete the square to write the function in the form $f(x) = a(x - h)^2 + k$.

59) $f(x) = x^2 - 14x + 51$

59) _____

60) $f(x) = x^2 + 2x - 8$

60) _____

61) $f(x) = 4x^2 - 48x + 146$

61) _____

Find the vertex.

62) $f(x) = 2x^2 - 16x + 35$

62) _____

63) $f(x) = 2x^2 + 8x + 7$

63) _____

64) $f(x) = 2x^2 + 20x + 53$

64) _____

Find the line of symmetry.

65) $f(x) = 4x^2 + 8x + 2$

65) _____

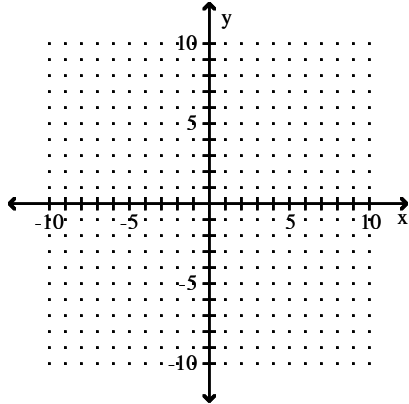
66) $f(x) = 3x^2 - 6x + 7$

66) _____

Graph. Label the vertex, axis of symmetry and any intercepts

67) $f(x) = x^2 + 2x - 4$

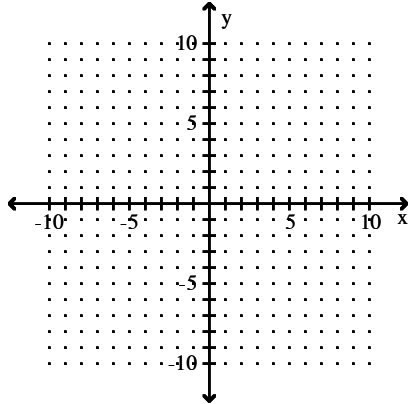
67) _____



Graph. Label the vertex and at least one other point on the graph

68) $f(x) = x^2 + 2x - 7$

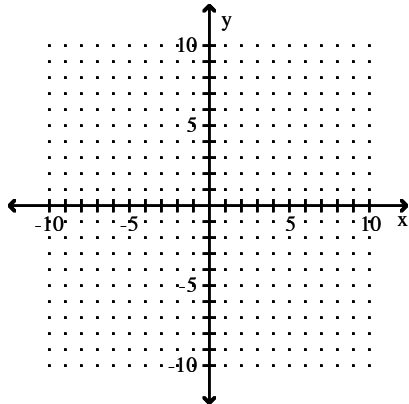
68) _____



Graph.

69) $f(x) = -x^2 - 2x + 2$

69) _____



Find the x- and y-intercepts. If no x-intercepts exist, state so.

70) $f(x) = 5x^2 + 10x + 4$

70) _____

Find the x- and y-intercepts. If no x-intercepts exist, state so. Be sure to write intercepts as ordered pairs.

71) $f(x) = 3x^2 + 8x + 1$

71) _____

Find the x- and y-intercepts. If no x-intercepts exist, state so.

72) $f(x) = x^2 - 3x + 19$

72) _____

Solve.

73) Which of the pairs of numbers whose sum is 78 has the largest product?

73) _____

74) A gardener is fencing off a rectangular area with a fixed perimeter of 68 ft. What is the maximum area?

74) _____

Find the quadratic function that fits the set of data points.

75) (1,1), (3,9), (-5, 73)

75) _____

Solve. Provide answers in interval notation.

76) $p^2 - 8p + 7 > 0$

76) _____

77) $s^2 - 5s - 14 < 0$

77) _____

78) $x^2 - 5x \leq -4$

78) _____

79) $(c - 3)(c - 6)(c - 9) > 0$

79) _____

80) $\frac{2x+3}{x-3} \leq 0$

80) _____

81) $\frac{x-7}{x+8} \leq 0$

81) _____

82) $\frac{(x-3)(x+7)}{x-4} \leq 0$

82) _____

83) $\frac{x+21}{x+2} < 5$

83) _____

Answer Key

Testname: 125CH11P

1) $\pm\sqrt{11}$

2) $-3 \pm 2\sqrt{3}$

3) $\pm\frac{4}{3}i$

4) $\pm\frac{7}{8}i$

5) $\frac{-4 \pm \sqrt{22}}{5}$

6) $-1 + \sqrt{42}, -1 - \sqrt{42}$

7) $-7 + 5\sqrt{2}, -7 - 5\sqrt{2}$

8) $x^2 - 4x + 4; (x - 2)^2$

9) $x^2 + 5x + \frac{25}{4}; \left(x + \frac{5}{2}\right)^2$

10) $x^2 - \frac{2}{3}x + \frac{1}{9}; \left(x - \frac{1}{3}\right)^2$

11) $\frac{-5 \pm 3\sqrt{5}}{2}$

12) $\frac{-3 \pm 3\sqrt{5}}{2}$

13) $-3, -\frac{1}{2}$

14) $(-4 + \sqrt{19}, 0), (-4 - \sqrt{19}, 0)$

15) $(-2 + \sqrt{7}, 0), (-2 - \sqrt{7}, 0)$

16) $\frac{-5 \pm \sqrt{13}}{4}$

17) $\frac{-51 \pm \sqrt{1171}}{26}$

18) $\frac{-6 \pm \sqrt{29}}{7}$

19) $-2, 3$

20) $4 \pm 7i$

21) $4, -11$

22) $-\frac{3}{2}, -5$

23) $2, -1 \pm i\sqrt{3}$

24) $\frac{11 \pm \sqrt{281}}{2}$

25) Two different irrational solutions

26) Two different imaginary solutions

27) Two different imaginary solutions

Answer Key

Testname: 125CH11P

28) $x^2 - 10x + 25 = 0$

29) $15x^2 - 7x - 30 = 0$

30) $3x^2 + 31x + 70 = 0$

31) $x^2 - 8x + 16 = 0$

32) $x^2 - 12x + 36 = 0$

33) $x^2 + 4 = 0$

34) 9 hr

35) 2 mph

36) 5.9 mph

37) 2.7 sec

38) -12, -68

39) $-\frac{1024}{243}, -1$

40) $\pm 3, \pm\sqrt{5}$

41) $\pm 1, \pm 2\sqrt{2}$

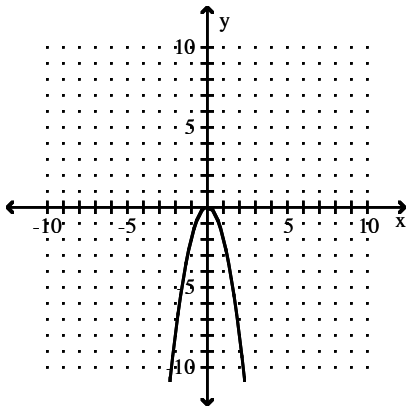
42) $\pm\sqrt{10}, \pm\sqrt{11}$

43) $\pm\sqrt{6}, \pm\sqrt{11}$

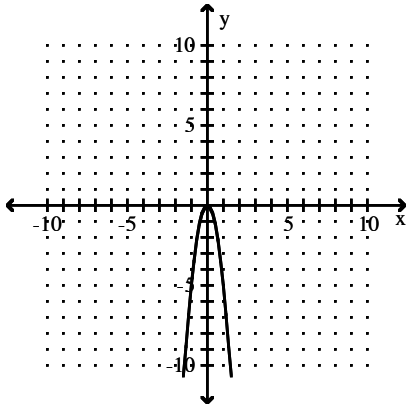
44) (1024, 0), (-3125, 0)

45) (6561, 0)

46)



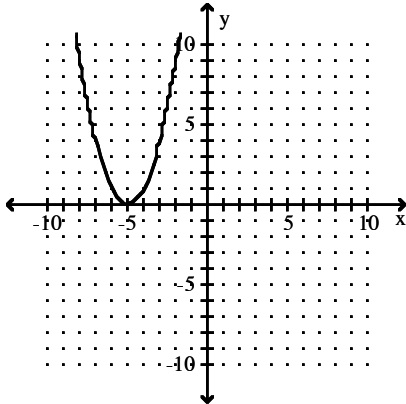
47)



Answer Key

Testname: 125CH11P

48)



49) $(-2, 2)$

50) $(-1, 7)$

51) $(20, 3)$

52) $\left(-\frac{1}{6}, 15\right)$

53) $x = 3$

54) $x = -2$

55) $x = -7$

56) -6

57) 3

58) -8

59) $f(x) = (x - 7)^2 + 2$

60) $f(x) = (x - (-1))^2 - 9$

61) $f(x) = 4(x - 6)^2 + 2$

62) $(4, 3)$

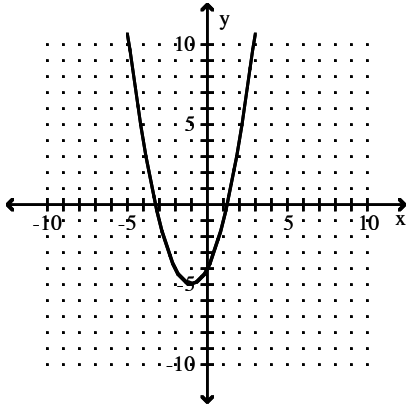
63) $(-2, -1)$

64) $(-5, 3)$

65) $x = -1$

66) $x = 1$

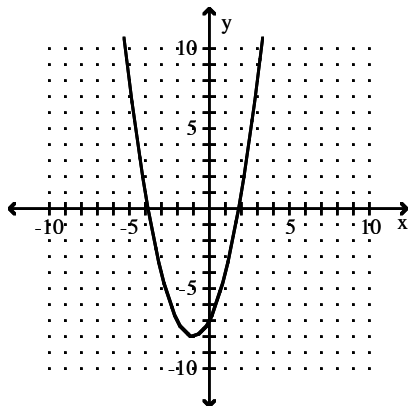
67)



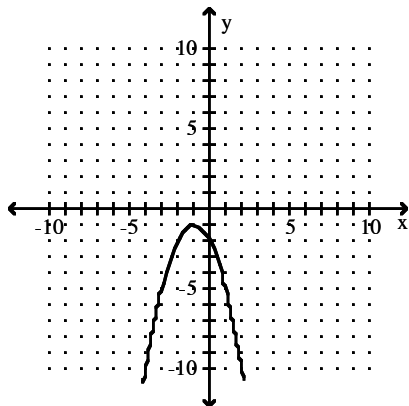
Answer Key

Testname: 125CH11P

68)



69)



70) $\left(\frac{-5 \pm \sqrt{5}}{5}, 0 \right), (0, 4)$

71) $\left(\frac{-4 \pm \sqrt{13}}{3}, 0 \right), (0, 1)$

72) No x-intercepts, (0, 19)

73) 39 and 39

74) 289 ft²

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

76) $(-\infty, 1) \cup (7, \infty)$

77) (-2, 7)

78) [1, 4]

79) $(3, 6) \cup (9, \infty)$

80) $\left[-\frac{3}{2}, 3 \right)$

81) (-8, 7]

82) $(-\infty, -7] \cup [3, 4)$

83) $(-\infty, -2) \cup \left(\frac{11}{4}, \infty \right)$