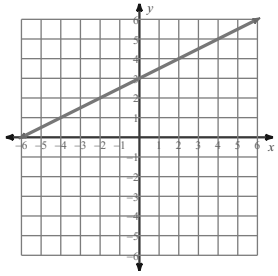
Algebra 1, Quarter 4, Units 7 and 8

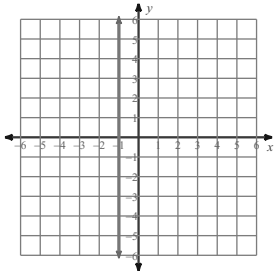
Final Exam Study Guide

1. Is the relation a function? 2. Identify the domain and range. 3. If a function, classify it as linear, quadratic, exponential, or none of these.

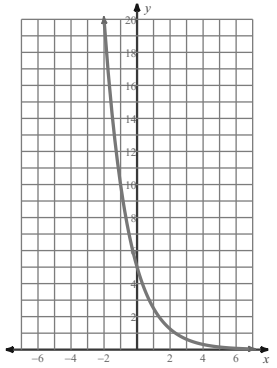
1) $x - 2y = -6$



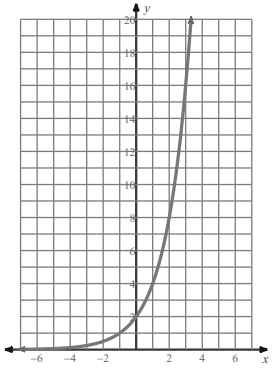
2) $x = -1$



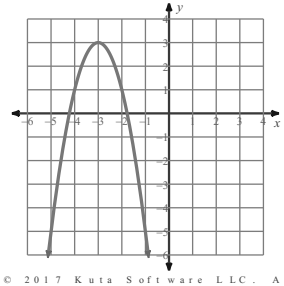
3) $y = 5 \cdot \left(\frac{1}{2}\right)^x$



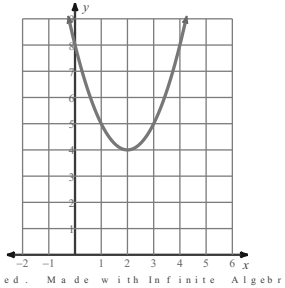
4) $y = 2 \cdot 2^x$



5) $y = -2x^2 - 12x - 15$



6) $y = x^2 - 4x + 8$



For the functions f(x) = 2x + 3; g(x) = 18x; and h(x) = 4x

7) find f(10)

8) find g(1)

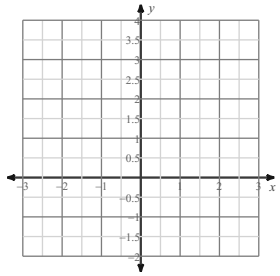
9) find g(6) + h(1)

10) find (f-g)(10)

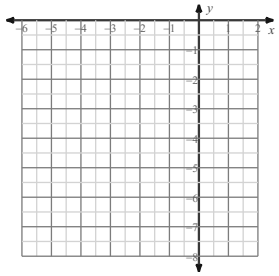
11) find f(h(2))

Sketch the graph of each function.

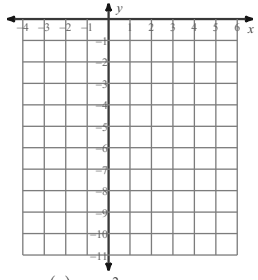
12) $f(x) = x^2 + 2x$



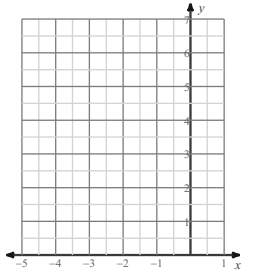
13) $f(x) = -x^2 - 2x - 4$



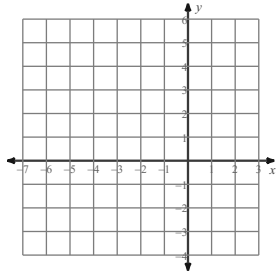
14) $f(x) = -2x^2 + 8x - 10$



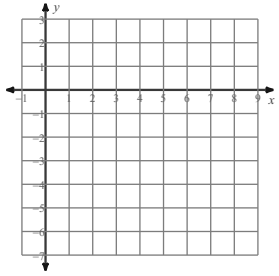
15) $f(x) = x^2 + 2x + 3$



16) $f(x) = 2x^2 + 8x + 5$

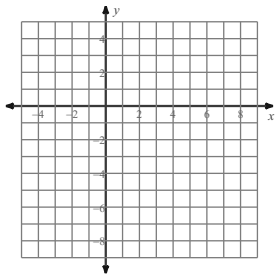


17) $f(x) = -2x^2 + 4x$

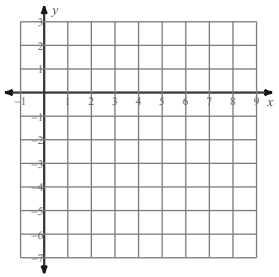


Sketch the graph of each function. Determine the root(s) (solution(s)).

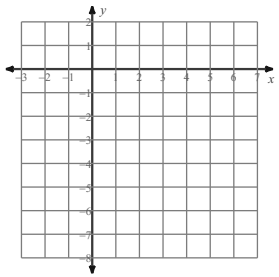
18) $f(x) = -3x^2 - 6x + 1$



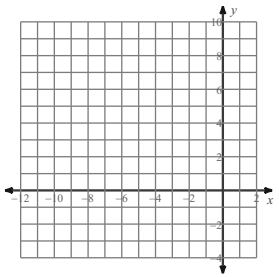
19) $f(x) = -2x^2 + 4x$



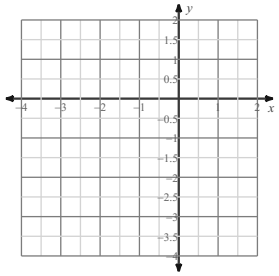
20) $f(x) = -2x^2 + 8x - 7$



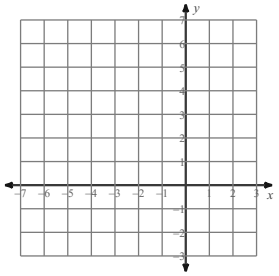
21) $f(x) = 3x^2 + 6x$



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



23) $f(x) = 2x^2 + 8x + 6$



Find the value of the discriminant of each quadratic equation.

24) $5k^2 + 3k + 4 = 0$

25) $5v^2 + 4v + 3 = 0$

Find the discriminant of each quadratic equation then state the number and type of solutions.

26) $-5x^2 - 10x - 11 = -6$

27) $4x^2 - 4x - 1 = -2$

28) $4m^2 - 13m + 20 = 8 + 2m^2$

29) $-5n^2 + 9 = -6n^2$

Solve each equation with the quadratic formula.

30) $k^2 + 5k - 24 = 0$

31) $2n^2 - 5n - 12 = 0$

32) $2n^2 = 18$

33) $5x^2 = 14$

34) $6p^2 - 98 = 3p^2 - 7p$

35) $-2p^2 + 6 - 3p = -8p^2 - 3p$

Solve each equation by factoring.

36) $(a - 1)(a - 2) = 0$

37) $(3b + 5)(b - 4) = 0$

38) $n^2 = -2n + 15$

39) $x^2 = -6x - 5$

40) $35a^2 + 245a - 49 = 7a$

41) $8x^2 + 59x = 8 - 4x$

Solve each equation by taking square roots.

42) $25k^2 = 1$

43) $r^2 + 5 = 69$

44) $9n^2 + 7 = 376$

45) $5x^2 - 8 = 17$

46) $8x^2 - 5 = 27$

47) $12n^2 - 2 = -292$

Find the value of c that completes the square.

48) $x^2 - 42x + c$

49) $x^2 + 24x + c$

50) $x^2 - 9x + c$

51) $n^2 + 9n + c$

52) $z^2 + 7z + c$

53) $m^2 - m + c$

Solve each equation by completing the square.

54) $n^2 - 6n + 8 = 0$

55) $r^2 + 14r + 33 = 0$

56) $10n^2 + 20n - 40 = -2$

57) $n^2 - 10n - 102 = -6$

58) $x^2 - x - 20 = -8$

59) $-9x^2 - 5x - 60 = -8 - 11x^2$

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