

Day 402 # 27-45

$$g(x) = 2x \quad \& \quad h(x) = x^2 + 4$$

27. $h(g(1))$

$$g(1) = 2(1)$$

$$g(1) = 2$$

$$h(2) = 2^2 + 4$$
$$= 4 + 4$$

$$= 8$$

30. $g(h(-2))$

$$h(-2) = (-2)^2 + 4$$

$$4 + 4$$

$$h(-2) = 8$$

$$g(8) = 2(8)$$

$$= 16$$

28. $h(g(-5))$

$$g(-5) = 2(-5)$$

$$g(-5) = -10$$

$$h(-10) = (-10)^2 + 4$$
$$100 + 4$$

$$= 104$$

31. $g(h(0))$

$$h(0) = 0^2 + 4$$

$$h(0) = 4$$

$$g(4) = 2(4)$$

$$= 8$$

29. $h(g(-2))$

$$g(-2) = 2(-2)$$

$$g(-2) = -4$$

$$h(-4) = (-4)^2 + 4$$
$$16 + 4$$

$$= 20$$

32. $g(h(a))$

$$h(a) = a^2 + 4$$

$$g(a^2 + 4) = 2(a^2 + 4)$$

$$2a^2 + 8$$

33. $g(g(a))$

$$g(a) = 2(a)$$

$$g(2a) = 2(2a)$$

$$= 4a$$

34. $h(h(a))$

$$h(a) = a^2 + 4$$

$$h(a^2 + 4) = (a^2 + 4)^2 + 4$$

$$a^4 + 8a^2 + 16 + 4$$

$$a^4 + 8a^2 + 20$$

35. $h(g(a))$

$$g(a) = 2(a)$$

$$h(2a) = (2a)^2 + 4$$

$$4a^2 + 4$$

~~36. $h(h(0))$~~

Use for #30-45

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

$$g(x) = x - 3$$

36. $g(f(-2))$

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

$$f(-2) = 4$$

$$g(4) = 4 - 3$$

$$= 1$$

$$37. f(g(-2))$$

$$g(-2) = -2 - 3 \\ = -5$$

$$f(-5) = (-5)^2 \\ = 25$$

$$38. g(f(0))$$

$$f(0) = 0^2$$

$$g(0) = 0 - 3 \\ = -3$$

$$39. f(g(0))$$

$$g(0) = 0 - 3 \\ = -3$$

$$f(-3) = (-3)^2 \\ = 9$$

$$40. g(f(3.5))$$

$$f(3.5) = (3.5)^2$$

$$f = 12.25$$

$$g(12.25) = 12.25 - 3 \\ = 9.25$$

$$41. f(g(3.5))$$

$$g(3.5) = 3.5 - 3 \\ = 0.5$$

$$f(0.5) = (0.5)^2 \\ = 0.25$$

$$42. f(g(a))$$

$$g(a) = a - 3$$

$$f(a-3) = (a-3)^2 \\ = a^2 - 6a + 9$$

$$43. g(f(-a))$$

$$f(-a) = -a^2$$

$$g(-a^2) = -a^2 - 3 \\ = -a^2 - 3$$

$$44. f(g(-a))$$

$$g(-a) = -a - 3$$

$$f(-a-3) = (-a-3)^2 \\ = a^2 + 6a + 9$$

45.

$$a. f(x) = x - 0.05x$$

$$b. g(x) = x - 200$$

$$c. x = 1500$$

$$g(f(1500))$$

$$1500 - 0.05(1500)$$

$$1500 - 75$$

$$= 1425$$

$$1425 - 200$$

$$= 1225$$

$$d. f(g(1500))$$

$$1500 - 200$$

$$= 1300$$

$$1300 - 0.05(1300)$$

$$1300 - 65$$

$$= 1235$$