Pre-Calc AB Worksheet #4 : Answers

1. (a) $j(-2) = 23$

   (b) $j(0) = 1$

   (c) $j(1) - j(0) = -2$

   (d) $j(2) = 3$

   (e) $j(a) = 3a^2 - 5a + 1$

   (f) $2j(a) = 6a^2 - 10a + 2$

   (g) $j(a + 2) = 3a^2 + 7a + 3$

   (h) $j(a) + j(2) = 3a^2 - 5a + 4$

   (i) $j(a) + 2 = 3a^2 - 5a + 3$

   (j) $j(x + h) = 3x^2 + 6xh + 3h^2 - 5x - 5h + 1$

   (k) $j(x + h) - j(x) = 6xh + 3h^2 - 5h$

   (l) $\dfrac{j(x + h) - j(x)}{h} = 6x + 3h - 5$

2. (a) Yes

   (b) No

   (c) No

   (d) Yes

3. C

4. (a) $f(x) = \dfrac{42}{x + 5}$

   (b) $k(z) = \dfrac{8}{\sqrt{z - 7}}$

   (c) $g(y) = \dfrac{1}{(x - 2)(x - 5)}$

5. (i) C

   (ii) $T(20) \approx 325°$. After 20 minutes the temperature of the oven was about $325°$F.

   (iii) The oven reached $350°$F, after about 10 minutes.

   (iv) The maximum value of the function is about $375°$F.

6. (a) Yes

   (b) No

7. (a) $(-\infty, -1) \cup (-1, 0) \cup (0, 1) \cup (1, \infty)$

   (b) $(-\infty, \infty)$

   (c) $\left(-\frac{9}{7}, \infty\right)$

8. (a) No

   (b) Yes

   (c) Yes

9. (a) $V(t) = 5000 - 1000t$, horizontal intercept is (5,0) which means in 5 years the machine has no value, the vertical intercept is (0, 5000) which means the initial value of the machine is $5000.

   (b) $H(t) = 4 + \frac{1}{6}t$, vertical intercept is (0, 4) which means the boy's present height is 4 feet.

   (c) $\mathcal{O}(w) = 100 - 10w$, horizontal intercept is (10, 0) which means in 10 weeks the loan will be paid in full, vertical intercept is (0, 100) which means $100 was the initial amount loaned.

   (d) $P(m) = 39 + 0.2m$, horizontal intercept is not applicable, vertical intercept is (0, 39) which means that the initial cost of the car, before it's driven, is $39.