

## Algebra 2 Course Prerequisite Packet Solutions

1.  $\frac{9y^{33}}{4x^9}$

2.  $4x^2 + 32x$

3.  $x^2 + 10x + 25$

4.  $-6x^3 - 15x^2 + 7x - 49$

5.  $-320x^{16}$

6.  $\frac{\sqrt{35}}{5}$

7. 210

8.  $-4x^2 + 9x + 4$

9.  $\frac{34}{15}$

10. 27

11.  $x^{10}y^9$

12.  $\frac{1}{9}$

13.  $x = 4$

14.  $r = -2$

15.  $x = 14$

16.  $7x(1 + 3y^2 - 9x^4)$

17.  $(5x + 8)(3x^2 - 7)$

18.  $(x + 9)(x - 4)$

19.  $(5x - 2)(x - 3)$

20.  $(10x + 3)(10x - 3)$

21.  $(x + 5)(x^2 - 5x + 25)$

22.  $(2x-4)(4x^2+8x+16)$

23.  $y = (x+8)^2 - 51$

24.  $x = 4$

25.  $x = 2, -16$

26.  $a = 1,313,228$   $b = 1.012$   $y = 1,313,228(1.012)^x$

a. 1,393,936 people

b. In 12 years

27. Domain:  $(-\infty, \infty)$       Range:  $[3, \infty)$       Function? Yes

28. Solution(s):  $(-1, 0), (2, 0), (3, 0)$       y-intercept:  $(0, -12)$

Critical Point(s): Absolute Minimum @  $(-0.25, -12.5),$

Relative Maximum @  $(2, 0),$

Relative Minimum @  $(2.5, -0.5)$

29. a. Yes, every x goes to only one y.

b. Domain:  $\{-2, -1, 0, 1, 2\}$

c. Range:  $\{-3, -2, -1\}$

d.  $\{(-3, -2), (-2, -1), (-1, 0), (-2, 1), (-3, 2)\}$

e. No, because not every x goes to only one y.

$-2 \rightarrow 1$  AND  $-2 \rightarrow -1$

$-3 \rightarrow 2$  AND  $-3 \rightarrow -2$

30. 4096 Bacteria

31.  $(3, 2)$

32.  $(5, -4)$

33. 48

34. 21

35.  $x = 45^\circ, y = 13\sqrt{2}$

36.  $x = 13, y = 13\sqrt{3}$

37.  $x = \sqrt{137}$

38.  $x = 8$