

## Precalculus Summer Homework Solutions

1. a)  $2x^3 - x^2 + 7x - 7$    b)  $8x^3y + x^2y - 6xy^3$    c)  $3b \{-5a + 3b \neq 0\}$

d)  $x^2 - 2x - 24$    e)  $\frac{1}{\sqrt[4]{a^7}} \{a \geq 0\}$    f)  $\sqrt[6]{7^{10}}$

2. a)  $3x^3 - 6x^2$    b)  $3x - 6$    c)  $3x^2 + 5x - 2$    d)  $3x^2 + 6x + 2$    3. a)  $\{x \neq 5\}$

4. a)  $4y^2 + 3y - 1 \{y \neq 0\}$    b)  $\frac{1}{m} \{m \neq 0, n \neq 0\}$    c)  $\frac{4x+4}{x-1} \{x \neq 1\}$    d)  $\frac{x+2}{2x-2} \{x \neq 1, x \neq 2\}$

5. a)  $3x^4y^5 + 15x^4y^2$    b)  $x^3 - 4x^2 - 15x + 18$

6. a)  $x = 0$  or  $x = \frac{1}{3}$    b)  $x = -8$  or  $x = 5$    7.  $-2 \pm \frac{\sqrt{57}}{3}$

8. a)  $\frac{-1}{a^2 + a} \{a \neq 0, a \neq -1\}$    b)  $\frac{2}{3} \{x \neq 0, y \neq 0\}$

c)  $\frac{14}{n^2 - 16} \{n \neq 4\}$    d)  $\frac{3x-6}{x} \left\{ x \neq 0, x \neq -2, x \neq \frac{5}{2} \right\}$

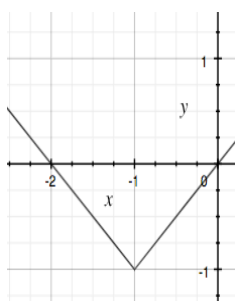
9. a)  $\sqrt[4]{n^5} \{n \geq 0\}$    b)  $\sqrt{r^5} \{r \geq 0\}$    c)  $64^{\frac{1}{5}}$  or  $8^{\frac{2}{5}}$  or  $4^{\frac{3}{5}}$

10. a)  $17\sqrt{2} - 3\sqrt{3}$    b)  $\frac{\sqrt{6}}{2x} \{x \neq 0\}$    c)  $-24\sqrt{3}$

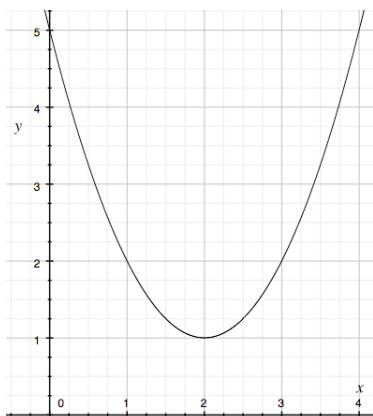
11. a)  $x = 4$    b)  $r = 4$    12.  $v = \pm \sqrt{\frac{2E}{m}} \left\{ \frac{2E}{m} \geq 0 \right\}$    13.  $y = -2x - 7$

14. slope =  $\frac{2}{5}$    y intercept =  $-\frac{6}{5}$

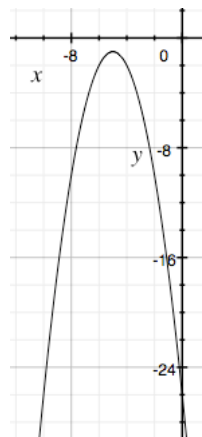
15.



a)  $(-2, 0), (-1, -1), (0, 0)$



b)  $(0, 5), (2, 1)$



c)  $(-5, -1), (0, -26)$

16. a)  $(6, 0)$    b)  $(0, 16)$    c)  $(-1, 2)$    17. x intercept =  $(-3, 0)$    y intercept =  $(0, 9)$

18. 25%   19. Two 20yd sides and one 40yd side of fence

20. a)  $(f \circ g)(x) = 2(x+1)^2$  domain: All real numbers   b)  $(f \circ g)(-3) = 8$

21.  $y = -\frac{1}{2}x - \frac{5}{2}$    22. a