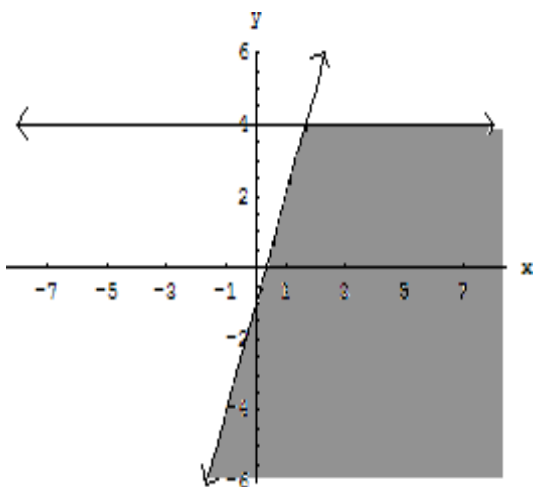


## Math 002 - Cumulative Review Answers

1. a)  $h = \frac{3V}{\pi r^2}$       b)  $I = A - QL$
- c)  $b = \frac{2A}{h} - a$       d)  $R_1 = \frac{R_2 R}{R_2 - R}$
2. a)  $f(-2) = 4$       b) Domain:  $[-4, 7]$       c) Range:  $[-4, 4]$
3. a)  $m = -3$       b)  $m = 1/2$       c)  $m = -3/4$
4. a)  $m = \frac{2}{5}, y - int = -\frac{4}{3}$       b)  $m = -\frac{2}{7}, y - int = \frac{3}{2}$
5. a)  $S(-1)=0, S(1)=1, S(2)=9/5$       b)  $h(1) = -3, h(-2) = 21, h(-1)=9$
6. a)  $x = \frac{-2}{5}$       b)  $[2, \frac{5}{2}]$       c)  $(-17, \infty)$
- d)  $(-\infty, \infty)$       e)  $(2, \infty)$       f)  $(5, \infty)$
- g)  $x = -8$       h)  $x = \pm 7$
7. a)  $x = 16$  or  $x = -2$       b)  $x = 5$  or  $x = 1$
- c)  $x = 7$  or  $x = -8/5$       d)  $(-\infty, -3) \cup (3, \infty)$
8. \$50.00
9. \$ 983.00
10. width = 10 and length = 16
11. width = 156 and length = 312
12. 17 checks

13.



14. a)  $(-3, -2)$                       b)  $(4, 10)$   
 c)  $(9, 9)$                               d)  $(0, -9)$

15. a)  $x = 0, x = \pm 2\sqrt{2}$               b)  $x = 5/2, -2/3$   
 c)  $z = 1, -1$                             d)  $x = 0, 6, -3$   
 e)  $x = 10, 2$                               f)  $x = -3, 4, \frac{-1}{5}$

16. a)  $2x^3 - 4x^2 + 7x - 9 + \frac{6}{x+2}$               b)  $3x^2 + 6x + 24 + \frac{72}{x-2}$

a)  $3x + 4 + \frac{-2x + 3}{x^2 + 1}$                                       b)  $5x^2 - 11 + \frac{x + 20}{x^2 - 2}$

17. a)  $\frac{-5(6+x)}{2x(x-3)}$                                       b)  $\frac{s^2}{(s-8)(s+8)}$

c)  $\frac{10-x}{3(x-5)(x+5)}$                                       d)  $\frac{7-9x}{(x+3)(x-3)(x+1)}$

18.  $x = \frac{15}{8}$  or approximately 1 hour and 52 minutes.

19.  $x = 11$

20. 20 pounds

21.  $150 \text{ ft}^2$

22. a)  $2\sqrt[3]{6}$                       b)  $2\sqrt{3} - \sqrt{6}$   
c)  $x - 36 - 5\sqrt{x}$               d)  $11m + 4n + 15\sqrt{mn}$

23. a)  $a = 5/3$                       b)  $\emptyset$ , no solution  
c)  $x = -15/2$                       d)  $a = 6, a \neq -1$  extraneous

24. a)  $2\sqrt{5}$                       b)  $\sqrt{53}$                       c)  $\sqrt{10}$

25. a)  $x = -2 \pm \sqrt{10}$               b)  $x = \frac{-2}{5}, \frac{1}{2}$                       c)  $x = -7 \pm \sqrt{10}$

26. 12

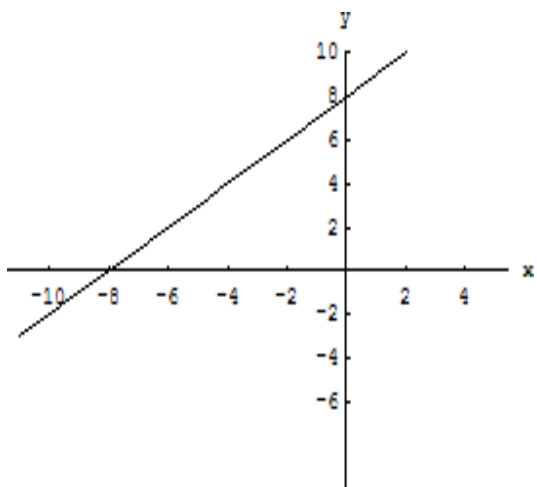
27.  $\frac{-3 \pm 3\sqrt{7}}{2} \approx 2.468$

28. a)  $\frac{3}{x-3}$                       b)  $\frac{x}{3}$                       c)  $\frac{x+5}{2x+2}$

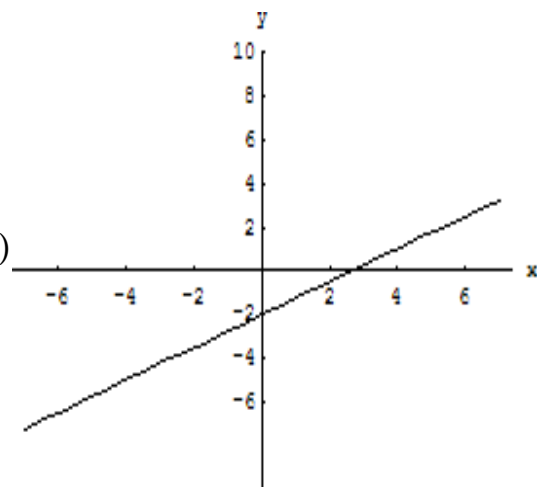
29. a)  $x \neq 2$  or  $(-\infty, 2) \cup (2, \infty)$                       b)  $x \neq \frac{1}{2}$  or  $(-\infty, 1/2) \cup (1/2, \infty)$

c)  $x \geq 4$  or  $[4, \infty)$                       d)  $x \leq \frac{5}{3}$  or  $(-\infty, 5/3]$

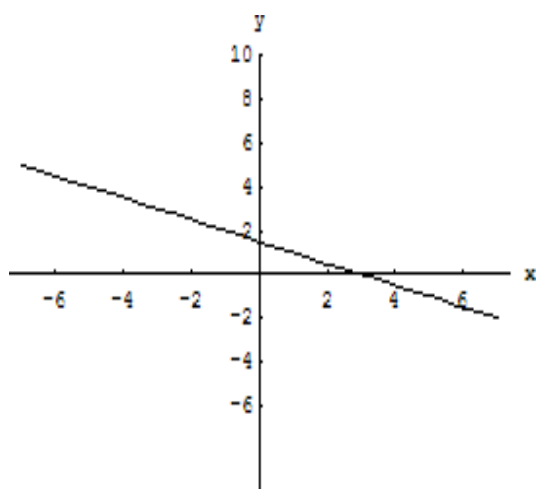
30a)



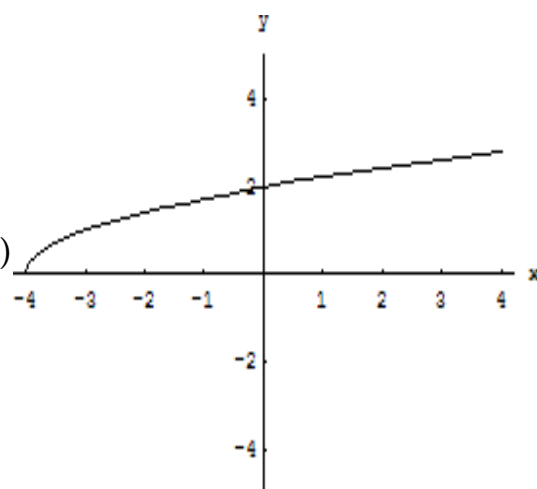
30 b)



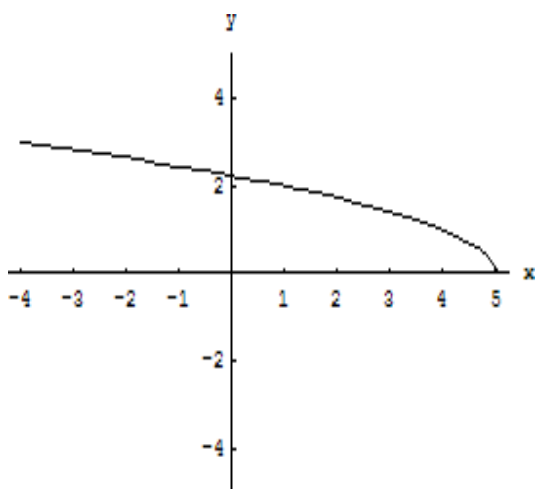
30c)



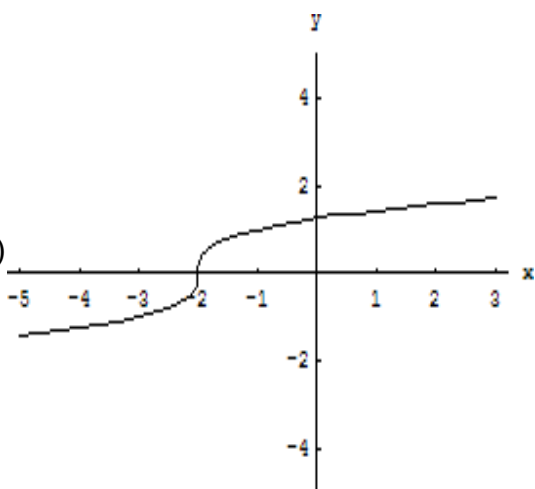
30d)

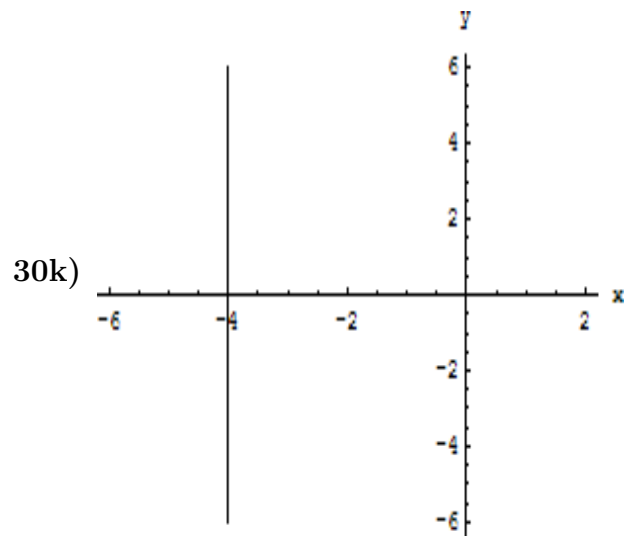
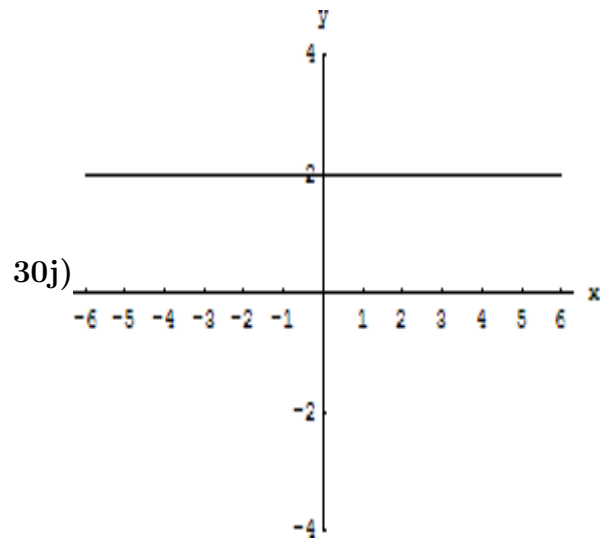
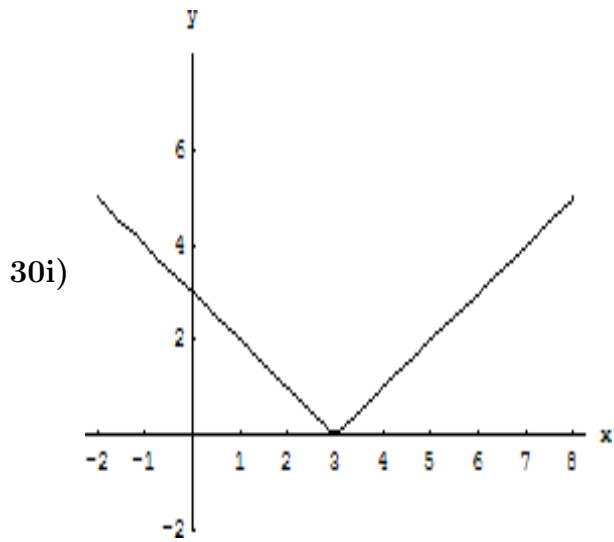
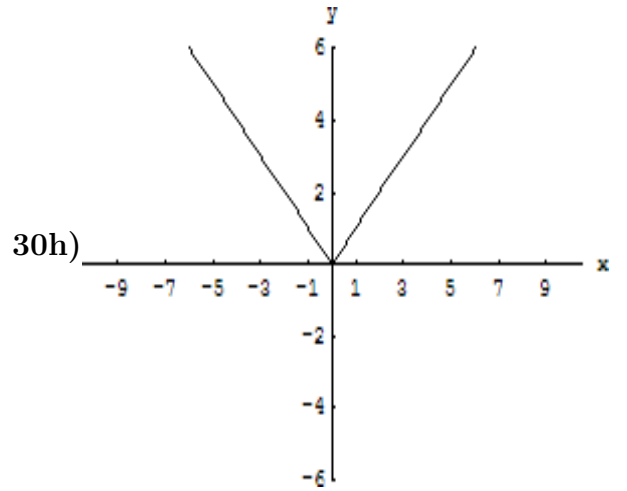
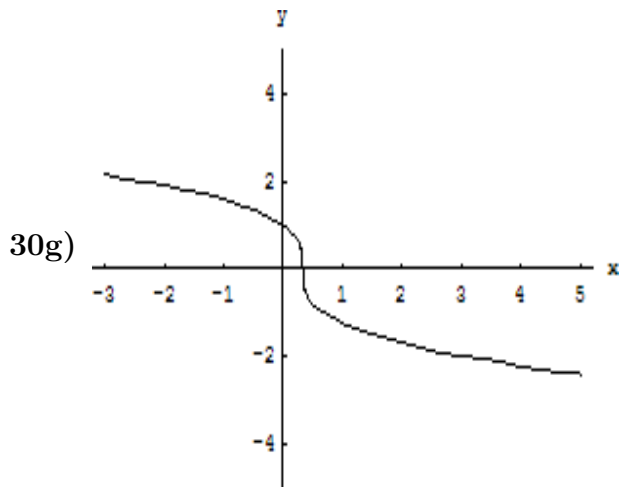


30e)



30f)





**31** a)  $2a^2 - 3a + 1$

b)  $2a^2 - 11a + 15$

c)  $2a^2 + 4ab - 3a - 3b + 2b^2 + 1$

**32** a)  $\frac{4x}{ax+2}$       b)  $\frac{1}{x+3}$       c)  $\frac{2}{3-x}$

**33** a)  $7 - i$       b)  $-1 + 7i$       c)  $-12 - 18i$

d)  $14 - 5i$       e)  $13$       f)  $-\frac{1}{5} + \frac{7}{5}i$

g)  $\frac{1}{2} + 2i$       h)  $7 + 24i$       i)  $7 + \sqrt{6}i$