Answers final Math 206 – April 2013

1. A) $-\sqrt{5}$ b) 1
2. A) $\frac{3\sqrt{5}+\sqrt{10}}{7}$ b) $-(3+\sqrt{2})$
3. A) $-12x^5+14x^4-15x^3-22x^2$ b) x/3
4. A) (x-2)(2x+3) b) $x^5(x-1)(x+1)$
5. $\frac{-x^2+3x+13}{(x-2)(x+1)(x+4)}$
6. A) x=-7 b) x=1/2 c) x=79/32
7. A) $-10<x\le -3$ b) $-6\le x\le 4$
8. (0,1); (-2/3, -1/3)
9. a) B b) $(x-4)^2+(y+10)^2=3^2$; center (4,-10), radius 3
10. a) domain: real numbers; range: (0, 1/3]
    b) domain: $x\le 4/3$; range: [0, infinity)
    c) domain: real numbers; range: [0,infinity)

11. shift to right by 3 units to get (x-3)^2; reflection on Ox for –(x-3)^2; vertical stretch (since coefficient is 2) to get the graph of -2(x-3)^2

12. a) $\frac{(x+3)(3x-1)}{2(x-2)^2}$ b. $\frac{(x+3)}{2(3x-1)}$ c. $\frac{(6x-7)}{2x+6}$ d. $\frac{x+13}{-3x+11}$

13. a) $f(x)=\frac{5-7x}{x-2}$ b) f has horizontal asymptote at –infinity and plus infinity: y=2

The inverse of function f has horizontal asymptote at plus and minus infinity y=-7.

14. 10/3 hours

15. bonds→ 6000$ and stocks 12000$

16. a) plug in t=9 b. solve the equation 700= $\frac{1000}{1+32.33e^{-0.439t}}$ for *t*

c. I don't know what "carrying capacity" is, but I guess is the maximum value for P (in practical terms there is a maximum value for the defined function which is 1000).

So, then it would be to solve the equation 500= $\frac{1000}{1+32.33e^{-0.439t}}$ for *t*