1. Solve the inequality. Express the solution both on the number line and in interval notation. Use Exactforms (such as fractions) instead of decimal approximations

$6x-3x^2>0$

b) Find all exact solutions in radians.
$2\sin^2(x) + \sin x = 0$

2. find the difference quotient $(h\neq0)$
$f(x)=3x+2$

3. State the amplitude, period, and phase shift, and then sketch one complete cycle of the graph. Label all maxima, minima, and x-intercepts.

   a) $y= -3\sin(2x+3\pi)$

   b) $y=4\sin(x+2\pi)$

4). Solve for x

   a) $3^{(5x+6)}=8^{(x-5)}$

   b)find the inverse
                      $Y=3-4x$

5) Suppose $4000 is invested at 12% interest compounded continuously. How long will it take for the investment to grow to $8000?

   b) How much will the investment be in 3 years?

6)Find the magnitude and the direction angle in degrees for:

    a) $\langle 3,-3 \rangle$

    b) $\langle 6\sqrt{3},6 \rangle$

7) Find the exact sum of the infinite geometric sequence.

a)$\frac{1}{2}, -\frac{1}{4}, \frac{1}{8}$ ....

(b) 32, -16,8, -4,...

8) Find the product. Write in standard complex form.

    a) $2(\cos 120° + i\sin 120°) \bullet 4(\cos 90° + i \sin 90°)$

9)For each polynomial, find a real number C so the polynomial has the indicated root. For this C, find all remaining roots of the polynomial algebraically and write the roots in the simplest radical form. Sketch a complete graph of the polynomial, indicating the roots.

$f(x) = x^3 + 3x^2 - 16x + C$ has a root at $x = 3$

10) find the asymptotes, intercepts, and domains. Find the formula of the graph of f(x).