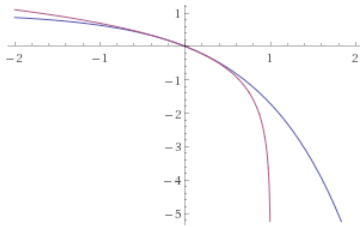
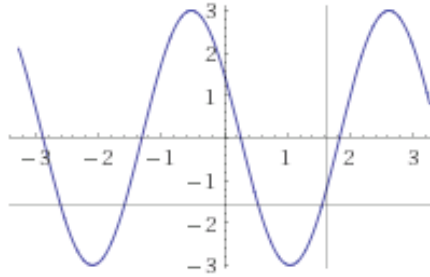


MATH 9 - FINAL REVIEW ANSWERS

- (1) $f(x): (-\infty, -\frac{1}{4}] \cup [3, \infty)$ $g(x): (-\infty, -2) \cup (-2, 1)$ $h(x): x \neq \frac{\pi}{4} + \frac{\pi}{2}k, k \text{ an integer}$
- (2) Maximum Area: 2 square units.
- (3) In standard form: $\frac{(x-1)^2}{4} + \frac{y^2}{9} = 1$ ELLIPSE
Center(1,0), vertices (1,3), (1,-3), covertices (3,0), (-1,0), Foci $(1, \pm\sqrt{5})$
- (4) $f(x) = (x-2)^2 - 3$, so vertex is (2,-3). Slope of $2x-3y=8$ is $2/3$ so perpendicular slope is $-3/2$.
Equation of line is $y+3 = -\frac{3}{2}(x-2)$
- (5) $f^{-1}(x) = \ln(1-x)$. Domain $f =$ Range $f^{-1} = (-\infty, \infty)$, Range $f =$ Domain $f^{-1} = (-\infty, 1)$

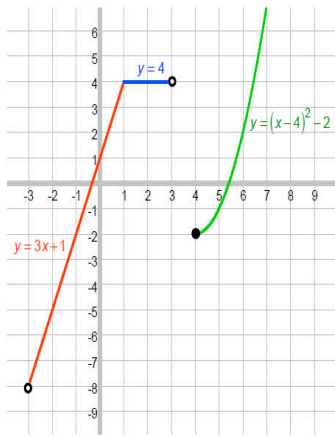


Problem 5

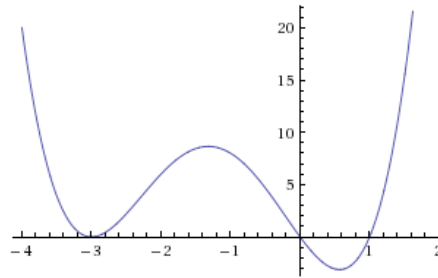


Problem 6 (computer generated, you should have x axis scaled in terms of p)

- (6) Period $=\pi$, Shift right $\pi/3$ and reflect.



Problem 7



Problem 8

(8) $f(x) = x(x-1)(x+3)^2$

(9) $x = \frac{\pi}{8}, \frac{3\pi}{8}, \frac{5\pi}{8}, \frac{7\pi}{8}, \frac{9\pi}{8}, \frac{11\pi}{8}, \frac{13\pi}{8}, \frac{15\pi}{8}$

(10) $x = \frac{\pi}{6} + 2\pi k, \frac{5\pi}{6} + 2\pi k, \frac{3\pi}{2} + 2\pi k,$

(11) $\det(B) = 1$ $B^{-1} = \begin{bmatrix} -3 & 2 & -4 \\ -1 & 1 & -1 \\ 8 & -5 & 10 \end{bmatrix}$

(12) (9,-4,2)

(13) a) $2x+h$ b) $\frac{1}{x^2-4}$

(14) $x = \frac{1}{2} - \frac{1}{2} \ln \frac{10}{3}$

(15) $x=1$

(16) a) $\frac{14-3x}{2(7-3x)^{3/2}}$ b)

$\frac{2+x}{(1+x)^{3/2}}$

c) $\frac{2x^2-7x-3}{(x+3)^2(x-3)}$

(17)

