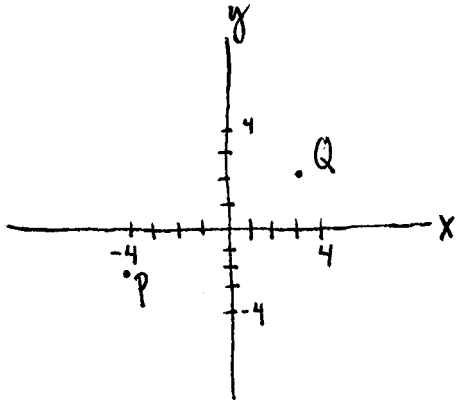
Exam I-C

1.



$d(P,Q) = \sqrt{(-4-3)^2 + (-2-2)^2} = \sqrt{65}$

$M = \left(\frac{-4+3}{2}, \frac{-2+2}{2}\right) = \left(-\frac{1}{2}, 0\right)$

$m = \frac{2--2}{3--4} = \frac{4}{7}$

$y-2 = \frac{4}{7}(x-3)$

$7y-14 = 4x-12$

$4x-7y+2=0$

2. $\begin{cases} 5+3y = 4 \\ -(5+3y) = 4 \end{cases}$ $\quad 3y = -1 \quad y = -\frac{1}{3}$ $\quad -5-3y = 4 \quad -3y = 9 \quad y = -3$

3 $\quad 3x-8y = 2$

$4x+8y = 12$

$7x \quad = 14 \quad x = 2$ $\quad 4+4y = 6 \quad y = \frac{1}{2}$

Solution $\{(2, \frac{1}{2})\}$

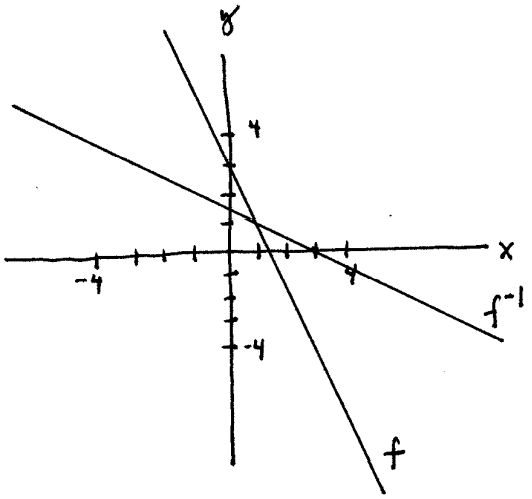
4. Domain $\quad 1-2x>0 \quad x<\frac{1}{2} \quad (-\infty, \frac{1}{2})$

$f(-2) = \frac{-2}{\sqrt{5}} \quad f(-1) = \frac{-1}{\sqrt{3}} \quad f(1)$ undefined

5. $x = 3 - 2y$

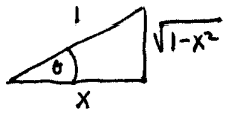
$x - 3 = -2y$

$y = -\frac{1}{2}x + \frac{3}{2}$



6. $\cos^{-1}\frac{1}{2} = \frac{\pi}{3}$

$\tan\left(\cos^{-1}\frac{1}{2}\right) = \sqrt{3}$

7. 

$\cos^{-1} x = \theta$

$\cos\theta = x$

$\sin\left(\cos^{-1} x\right) = \sqrt{1-x^2}$

8.

		$c=-1$	$c=1$	$c=2$
A	$f(c)$	3	undefined	1
B	$\lim_{x\to c^-} f(x)$	3	5	3
C	$\lim_{x\to c^+} f(x)$	3	5	1
D	$\lim_{x\to c} f(x)$	3	5	undefined

9. A. $\lim_{x\to 1} \frac{x^2-2x-7}{x^2+x-1} = \frac{(1)^2-2(1)-7}{(1)^2+1-x} = \frac{-8}{1} = -8$

B. $\lim_{x\to -3} \frac{6-x-x^2}{3+x} = \lim_{x\to -3} \frac{(3+x)(2-x)}{3+x} = \lim_{x\to -3} 2-x = 5$

C. $\lim_{x\to 0} \frac{\sin^2 2x}{x^2} = \lim_{x\to 0} \frac{\sin 2x}{x}\,\frac{\sin 2x}{x} = \lim_{x\to 0} 2\,\frac{\sin 2x}{2x}\,2\,\frac{\sin 2x}{2x} = 2(1)\cdot 2(1) = 4$