Polynomial Function Exam 4

1. Determine the roots of each quadratic equation by the indicated method.
   a) Factoring $2x^2 + 8x - 10 = 0$
   b) Complete the Trinomial Square $2x^2 + 3x - 1 = 0$
   c) Quadratic Formula $-4x^2 + 5x + 3 = 0$

2. Determine the sum and the product of the roots for the following equation:
   $4x^2 - 5x = 6 = 0$

3. Determine the equation of quadratic function if the roots are $(2 \pm \sqrt{3})$

4. Determine the value of the discriminant and the nature of the roots of the quadratic function $5x^2 - 3x - 2 = 0$.

5. Determine the roots of one of the following polynomial functions (Do one of the following)
   a) $3x^4 - 8x^2 - 3 = 0$
   b) $4x - 4\sqrt{x} - 15 = 0$

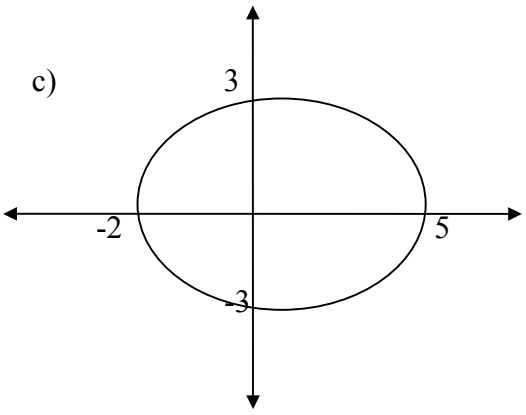
6. State the inverse for each of the following:

a) $5x - 2y = 11$

b)

x	-3	1	5
y	1	2	-4

c)



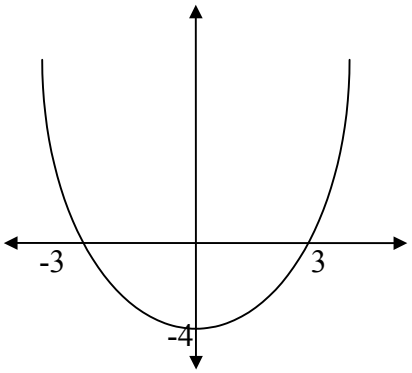
7. State the reciprocal for each of the following:

a) $y = 3x - 5$

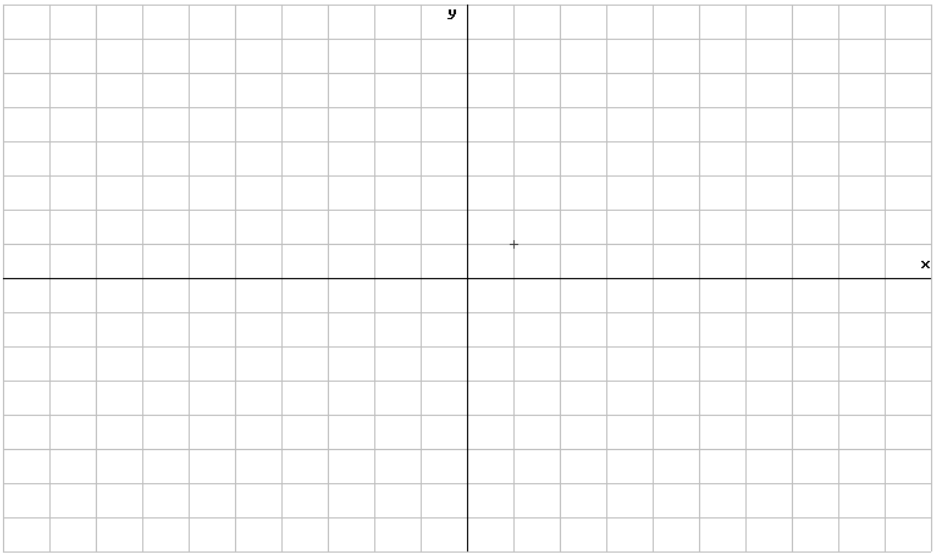
b)

x	-2	4	5
y	0	2	7

c)



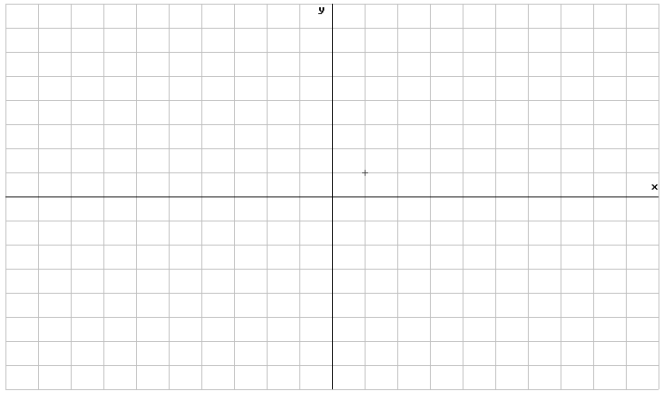
8. Graph the following rational expression: $y = \dfrac{4}{x^3 - 5x^2 - 14x}$

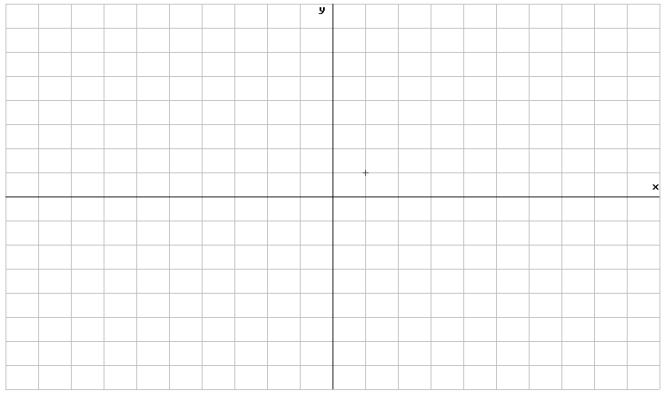


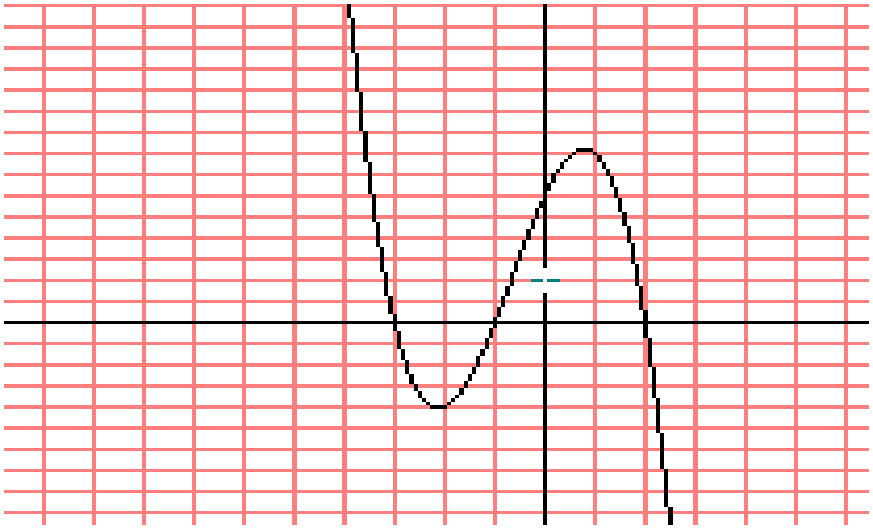
Polynomial Function Exam

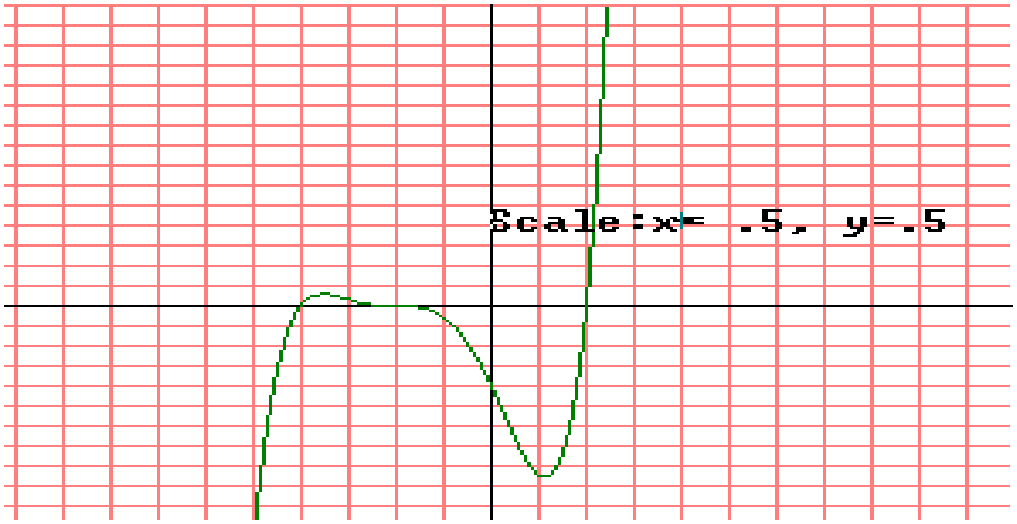
Equation	x^3+5x^2+3x-9	$x^4-10x^3+24x^2+10x-25$		x^3+5x^2+3x-9	$x^4-10x^3+24x^2+10x-25$
1. degree of equation			7. possible number of positive real roots		
2. the value of the constant			8. possible number of negative real roots		
3. the value of the leading coefficient			9. possible number of imaginary roots		
4. the value of the y intercept			10. write out the possible factors		
5. where the graphs starts			11. identify critical zeros (values, x-intercepts)		
6. where the graph finishes			12. multiplicity of each factor		

Sketch each graph









Complete the table using the above graphs

1. possible degree of the function			7. number of peaks		
2. value of the y-intercept			8.number of valleys		
3. number of positive real roots			9. critical zeros		
4. number of negative real roots			10. the factors containing critical zeros		
5. number of imaginary roots			11. the equation		
6. number of times graph changes direction			12. multiplicity of each factor		