

Math 201 Practice Test 1

(1-1, 1-2, 2-1 to 2-5)

Note: This should not be regarded as an altered version of your exam. It's just a study guide, and it's longer than the real exam.

1. Solve for x and express your answer in interval notation:

$$3 \leq \frac{-2x-3}{5} < 7$$

2. Solve $CD + C = PC + N$ for C .

3. Determine the slope for the following line equations, if any:

a) $-2x + 5y + 3 = 0$

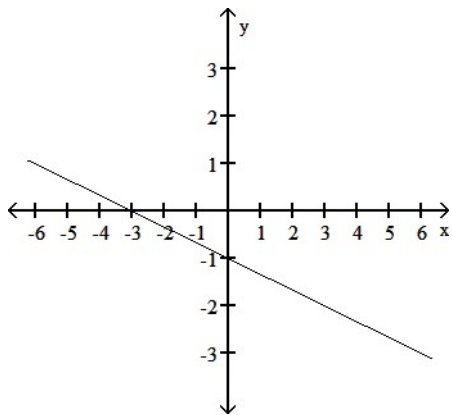
b) $x = 4$

4. For $f(x) = 2x^2 - 3x + 6$, evaluate $\frac{f(a+h) - f(a)}{h}$ and simplify.

5. A special ID card store lets students to buy new ID cards for \$5.75 each. If the ID card center costs \$480 per month to run and each ID card costs \$1.75 to make, then how many ID cards would the ID card center have to sell in one month to break even?

6. Find the equation of the line that passes through the points $(-1, 4)$ and $(5, -1)$. Express your answer in slope-intercept form.

7. Write the equation of the line in the following graph in standard form, which is in the form $Ax + By = C$, where A , B , and C are integers with no common divisors (other than ± 1) and $A > 0$.



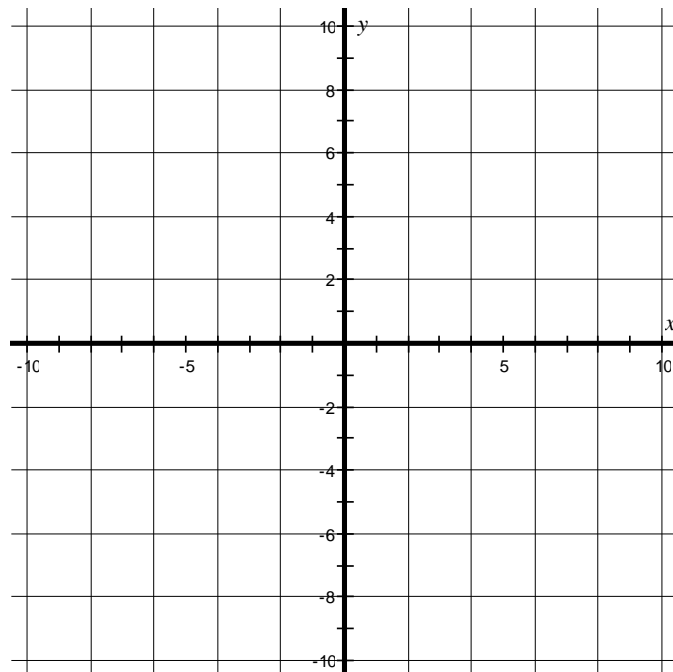
8. (2pts) Given $f(x) = \frac{4}{\sqrt{8-2x}}$, find the domain in interval notation.

9. Given $f(x) = 2\sqrt{x+2} - 1$

(a) What is the corresponding basic elementary function if you want to use transformations to graph?

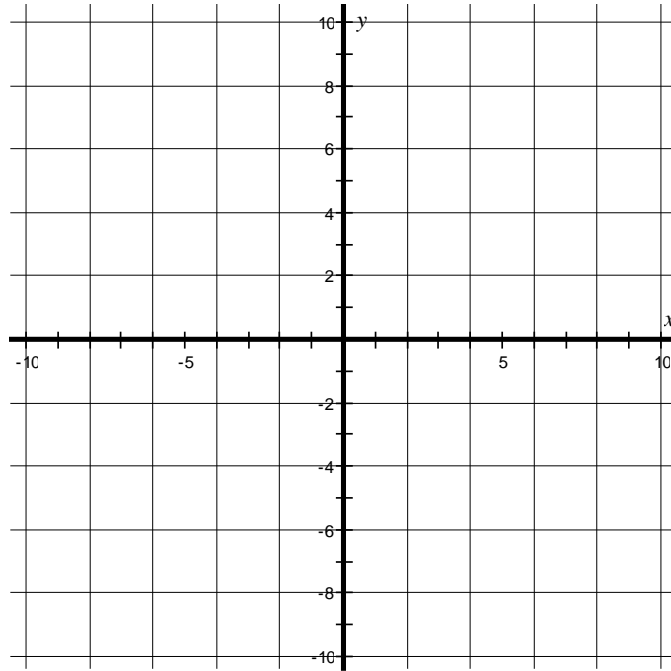
(b) List the transformations in correct order.

(c) Use transformations to sketch the graph of $f(x)$. For full credit, label at least two points on your final graph.



10. Graph the piece-wise defined function:

$$f(x) = \begin{cases} x^2 - 1, & \text{if } x \geq 2 \\ 2 - 3x, & \text{if } x < 2 \end{cases}$$

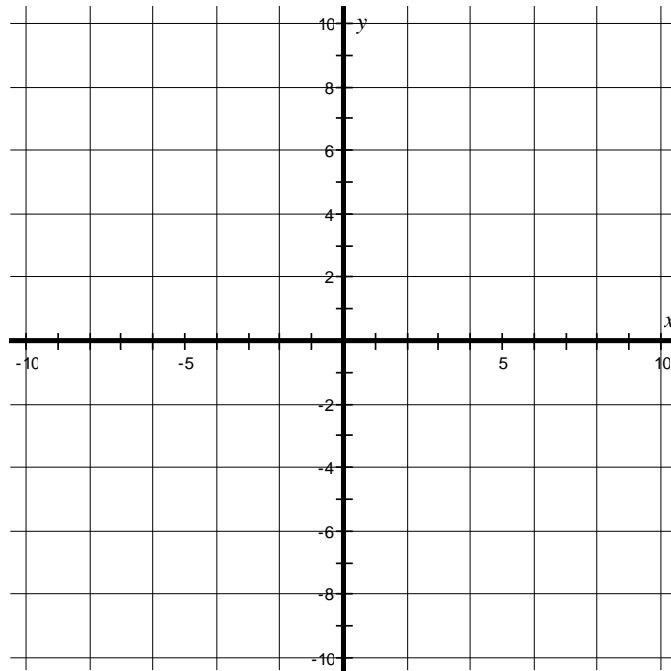


11. Given the quadratic function $f(x) = 2x^2 - 12x + 10$. Find:

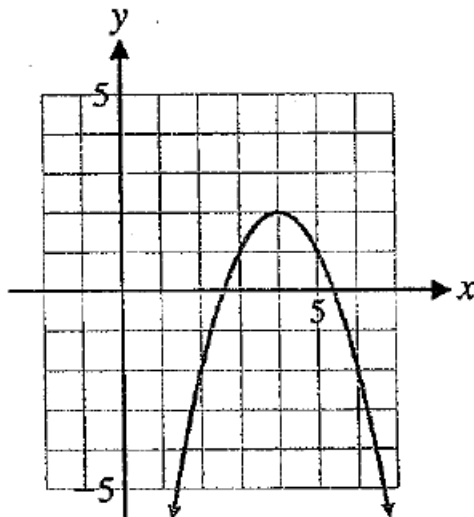
- the *Vertex Form* of the function.
- the vertex. Is it a maximum or a minimum?
- the equation of the axis of symmetry.
- x -intercepts (if any).

e) the range in interval notation.

f) Graph the function on the axes given. For full credit, clearly label the vertex, x - and y -intercepts (if any).



12. From the following graph please provide the corresponding quadratic function in the form $ax^2 + bx + c$ if the leading coefficient a is 1 or -1.



13. Given the polynomial function $f(x) = -(x^2 - 9)(x^4 + 1)(3x - 2)$

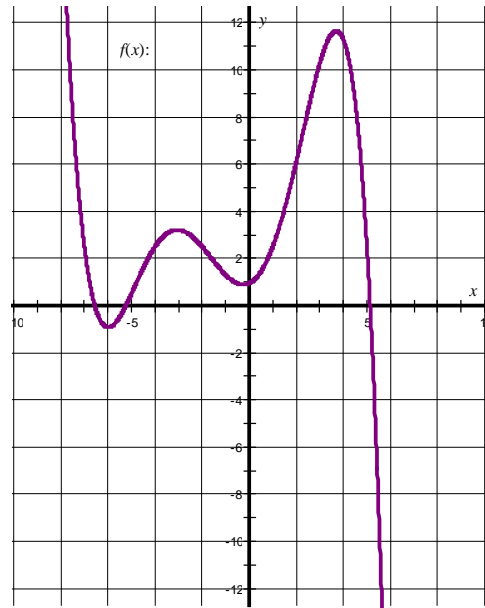
Determine the degree, y-intercept and x-intercepts.

14. Solve for x in each equation:

1) $9^{x^2} = 9^{x+2}$

2) $(x^2 - 1)^5 = (2x - 1)^5$

15. Given the graph of a polynomial, determine the minimum degree of the function and whether the leading coefficient is positive or negative.



a. Minimum degree: _____

b. Leading coefficient (circle one):

positive or negative

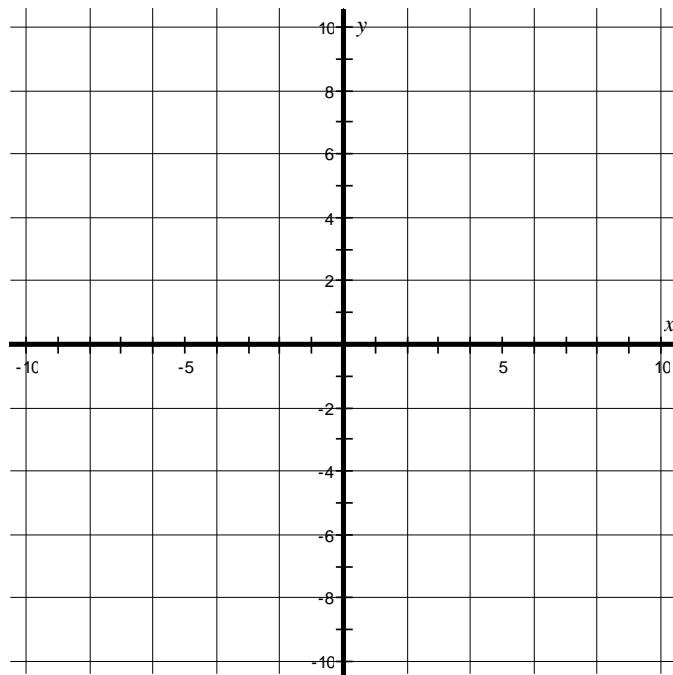
16. Given the rational function $f(x) = \frac{2x^2 - 2}{x^2 - 2x - 3}$

a) Find the domain.

b) Find the vertical asymptote(s), if any.

c) Find the horizontal asymptote, if any.

17. Graph $f(x) = \frac{3x+5}{x-2}$. Label all x-, y-intercepts, and asymptotes.



18. Determine all vertical and horizontal asymptotes, if any:

a) $f(x) = \frac{x^2 - 1}{(x-5)(2x+3)(x+2)}$

b) $f(x) = \frac{x^2 - 4}{(2x-5)(x-3)}$

c) $f(x) = \frac{x^4 - 1}{(x+7)(3x+4)(x-5)}$