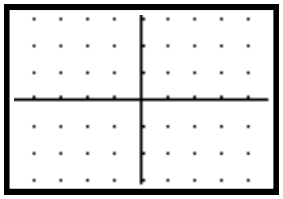
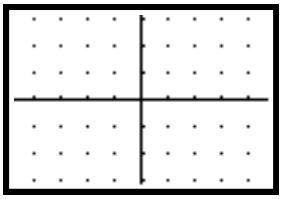
Math 1010-90: Intermediate Algebra Online
Practice Exam 2

Support all answers with **work** and circle your answers. **Follow all directions**. Use pencil.

1. GRAPHING. Graph the functions:



a. $y = -|x|$



b. $y = (x-3)^2 - 1$

2. SOLVING EQUATIONS. Solve each equation for x:

a. $x^2 - 2x = 15$

b. $\dfrac{3}{2x} = \dfrac{x+2}{x+1}$

3. A FEW THINGS.

a. Write 75 trillion in scientific notation

c. Simplify: $\sqrt[3]{x^2} \cdot \sqrt[3]{x^7}$

b. Rationalize the denominator: $\dfrac{2}{y\sqrt{5}}$

d. Simplify: $\dfrac{\sqrt{39x^2}}{\sqrt{3}}$

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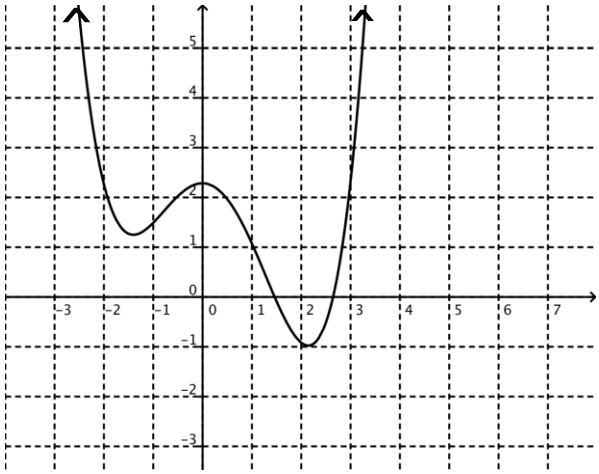
4. READING GRAPHS.

Given the function, f(x) shown in the graph:



a. State the domain:_____

b. State the range:_____

c. f(-2) = _____

d. The y-intercept(s) *(as point(s) in the form (a,b))*: _____

e. For what x is f(x) = 4? _____

5. EXPONENTS. Simplify with <u>positive exponents</u>:

a. $(-3x^3y^4)^2(2x^2y)^3$

b. $\dfrac{x^2y^{-2}z}{x^4y^3z^{-2}}$

c. $\left(2^{-1}-2^{-2}\right)^{-2}$

6. MULTIPLICATION. Multiply these. The answer should be simplified and written in standard form.

a. $(3x+2)(2x-5)$

b. $(2x-5)^2$

c. $(3x+5)(3x-5)$

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7. RATIONAL FUNCTIONS: State where the expression is undefined. Then, simplify, showing work and leaving in factored form.

a. $\frac{9}{2x} - \frac{3}{x-4}$

Undefined:

b. $\frac{3x^3(2x+1)}{12x(x-2)} \div \frac{2x+1}{2-x}$

Undefined:

8. WRITE AND SOLVE EQUATIONS.

a. Write two equations using x for length and y for width:

The length of a rectangle is 2cm more than twice its width. _____

The perimeter of a rectangle is 34 cm. _____

b. Solve the system. (Show work!)

c. Use the Pythagorean theorem to find the length of the diagonal.

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9. SYSTEMS OF EQUATIONS. Solve the systems of equations.

a. $5x + 2y = 3$
$2x + 3y = 10$

b. $x = 2y + 3$
$x - 2y = 5$

c. $2x + y = 4$
$-4x - 2y = -8$

10. POLYNOMIALS. Given: $f(x) = 5x - 3x^2 + 2x^3 - 4$ and $g(x) = 2x^3 - 3x^2 + 6$. Perform the operation, put each <u>answer in descending form,</u> and then state its degree and leading coefficient.

a. $f(x) - g(x) =$ Degree:_____ LC:_____

b. $5x^3 \cdot f(x) =$ Degree:_____ LC:_____