Spring 2006 Math 50 FINAL EXAM NAME: _____

SHOW NECESSARY WORK ON THE TEST COPY
PLACE YOUR ANSWERS IN THE BLANKS PROVIDED

Answers

1. Simplify the following expressions: [2 points each] 1.

a) $(3x^3 - x^2 + 5) - (2x^2 - 7x + 1)$ a) _____

b) $0.3(x + 5) + 0.6$ b) _____

2. Multiply and simplify. [3 points each]

2.

a) $(x + 2y)(x - 2y)$ a) _____

b) $(x - 4)(x^2 + 3)$ b) _____

c) $(x + 3)(2x^2 + x + 1)$ c) _____

3. Factor completely: (If not factorable, answer "prime") [3 points each] 3.

a) $2x^2 + 7x - 15$ b) $3x^2 - 18x + 27$ a) _____

b) _____

c) $8x^3 + 125$ c) _____

Answers

4. Solve each of the following. [3 points each]

a) $3(2x+4) - 20 = 3 + 5x$

b) $\frac{6x-8}{5} = 2x$

c) $\frac{7}{5}x + \frac{3}{5} = -x$

4.

a) x = _____

b) x = _____

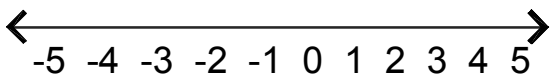
c) x = _____

5. Solve the inequality. Graph the solution set and write it in interval notation. [4 points]

$-2 < 2 - x \leq 4$

Interval notation _____

graph



6. Solve the absolute value equation. [2 points]

$|2x - 1| = 7$

6.

x = _____

Answers

7. [1 point each] 7.

a) Write 3.5×10^{-4} in standard notation. a) _____

b) Write 346,000 in scientific notation. b) _____

8. Solve each formula for the specified variable: [2 points each] 8.

a) $V = \frac{1}{3}Ah$ for h a) _____

b) $P = 2w + 2h$ for w b) _____

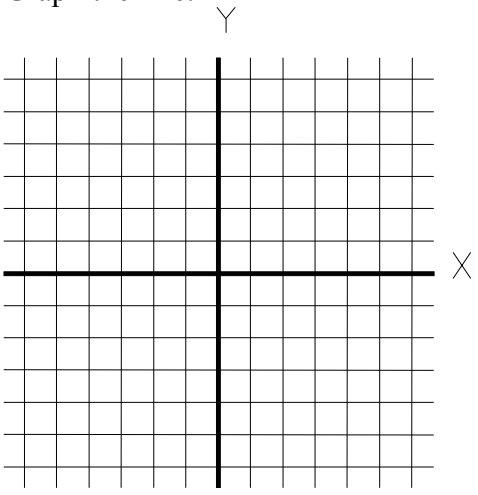
9. Find the domain and range of the following relation. Determine whether the relation is a function. [1 point each]

{ (0,1) , (1,2) , (2,4) } Domain:_____; Range:_____

Function ? (Yes or No) _____

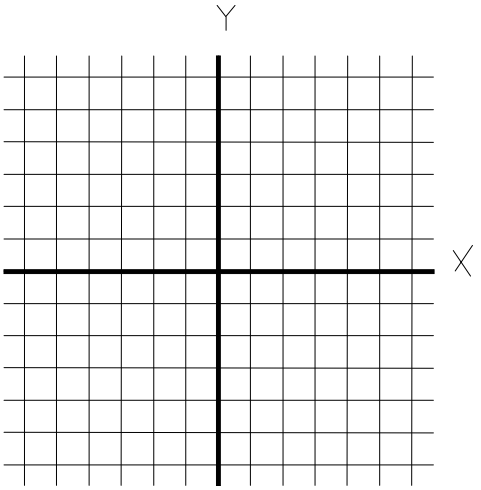
10. Find the x- and y-intercepts of the line described by $3x + 2y = 6$. [3 points] Intercepts:

Graph the line. _____ & _____

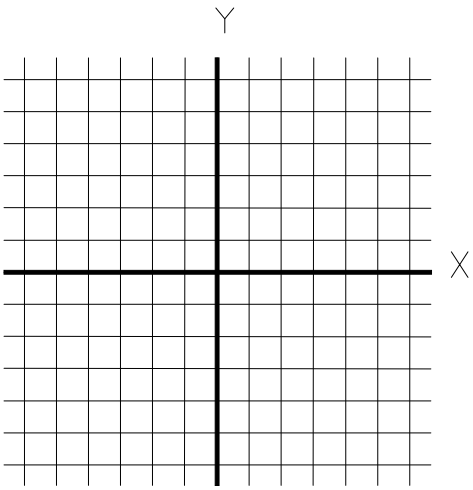


11. Graph each linear equation in the x,y coordinate plane: [2 points each]

a) $y = -2x + 3$

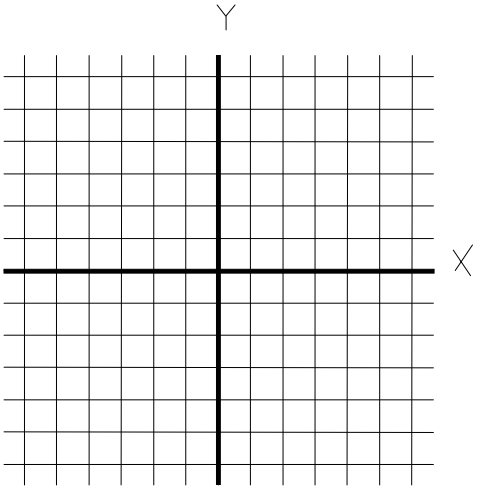


b) $y = \frac{1}{3}x$



12. Graph the following nonlinear function. [2 points]

$f(x) = |x| + 1$



13.a) Find the slope of the line through (2, 3) and (4, 7). [3 points]

Answers

13.
a) _____

b) Find the equation of the line through (2, 3) and (4, 7).
Write the equation in slope-intercept form.

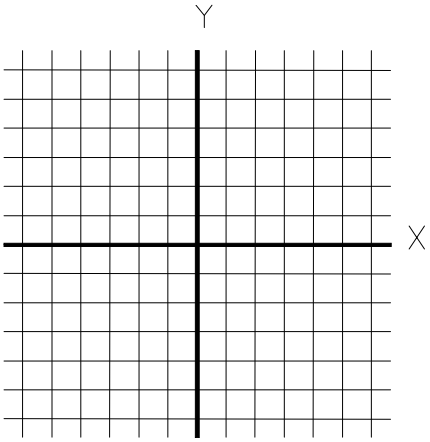
b) _____

14. Find the equation of the line through (0,3) perpendicular to the line $y = -\frac{1}{5}x + 4$. Write your answer in standard form. [2 points]

Answers

14. _____

15. Graph the solution of the system of linear inequalities: $\begin{cases} x + 2y \le 4 \\ x > 2 \end{cases}$ [3 points]



16. Solve the following system of equations using a method of your choice. [4 points]

Answers

16. _____

$$\begin{cases} x + y = 2 \\ 2x + 3y = 7 \end{cases}$$

17. Solve each equation. [3 points each]

a) $x^3 - 8x^2 + 12x = 0$

b) $x(x + 2) = 8$

17.

a) _____

b) _____

18. If $f(x) = 2x^2 + x$, find the indicated values: [2 points each]

Answers

18.

a) _____

a) $f\left(\frac{1}{2}\right)$

b) $f(-1)$

b) _____

19. Simplify using properties of exponents. Write answers with positive exponents. Assume all variables are positive. [3 points each]

19.

a) $\frac{3x^8 y^0}{6x^5 y^3}$

a) _____

b) $\frac{(3a^4 b)^2}{a^8 b^3}$

b) _____

c) $\frac{2^{-3} x^{-4} y^2 y^6}{x^5 y^{-3}}$

c) _____

20. Divide. [3 points each]

20.

a) $\frac{6x^6 y^2 + 3x^3 y}{3x^3 y}$

a) _____

b) Divide $3x^2 + 14x + 8$ by $x + 4$

b) _____

21. Solve each word problem below by writing **one or more** equations. [4 points each]
Define your variable(s) and answer the questions posed. The problem may require one variable and one equation or two variables and two equations.

a) The perimeter of a rectangle is 36 feet. The length is twice the width. Find the dimensions of the rectangle.

Define the variable or variables:

Equation or equations :

Solution or solutions _____

b) Basketball tickets at a high school sell for $5 for general admission and $2 for students. $900 was made in ticket sales for one game and a total of 270 tickets were sold. How many of each type of ticket was sold?

Define the variable or variables:

Equation or equations:

Solution or solutions _____