

K.F. Jan
4/30/10

Name: _____

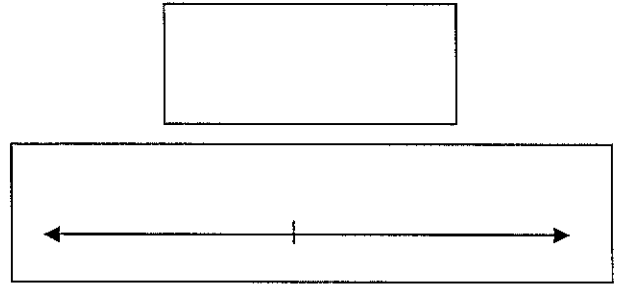
Major: _____

Instructor: _____

Directions: Show all your work and place your final answer in the box provided.
Simplify all answers completely.
NO CALCULATORS.

Page	Maximum Points Possible	Score
1	16	
2	16	
3	12	
4	16	
5	16	
6	12	
7	12	
Total	100	

1. Solve and graph: $2x + 5(4 - x) < 2$



2. Simplify: $(2x - y)^2 - (3x^2 - 11xy + 8y^2)$



3. The formula for the perimeter of a rectangle is $P = 2l + 2w$

a) Solve the formula for w .



b) Find the width of a rectangle with length 12 cm and perimeter 32 cm.



4. Solve for x : $3(x + 1) - 4(x + 3) = 5$



5. Simplify: $\frac{8x^3y^2 + 4x^2y^2 - 2x^4y}{4x^2y^2}$

6. Simplify: $\left(\frac{-3x^{-5}}{x^2y^{-3}}\right)^{-2}$

7. a) Write 125,000,000,000 in scientific notation:

b) State the range for: $\{(4,6), (9,7), (5,9), (3,1)\}$

c) Given $f(x) = -x^2 - 2x + 5$, find $f(2)$

8. Solve the system of linear equations or state if no solution exists: $\begin{cases} 4x + 6y = 12 \\ 6x = 18 - 9y \end{cases}$

9. A board measuring 42 inches is to be cut into 2 pieces. If the longer piece is 6 inches longer than twice the shorter piece, find the lengths of **both** pieces.

10. Divide and simplify: $\frac{9y^2 - 4}{21y - 14} \div \frac{6y^2 + 4y}{21y^3}$

11. Solve for x: $\frac{1}{x-4} + \frac{1}{x+1} = \frac{x^2 - 6}{x^2 - 3x - 4}$

12. a) Factor completely: $6x^2 - xy - 12y^2$

b) Factor completely: $3x^4 - 48$

13. Solve for x : $(x+3)(x+4) = 3x+8$

14. For the points $(1,-4)$ and $(-2,-10)$

a) Find the slope of the line passing through the points.

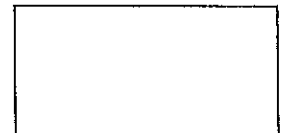
b) Find the slope-intercept equation of the line passing through the points.

15. Simplify: $\frac{5}{x^2+2x-3} - \frac{2}{x+3}$

16. Simplify: $10\sqrt{2x^3} - x\sqrt{98x} + \sqrt{50x^3}$



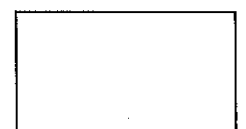
17. In A basketball game a player has scored 37 points on a total of 17 baskets consisting of 2-pointers and 3-pointers. How many of each basket has he scored? (Show all work for credit.)



18. Rationalize the denominator and simplify: $\frac{6}{\sqrt{5}-\sqrt{2}}$



19. Solve for x: $\sqrt{x+4} = x-2$



20. Solve by completing the square (Show all work):

$$x^2 - 8x + 3 = 0$$

21. For the $y = x^2 + 2x - 8$

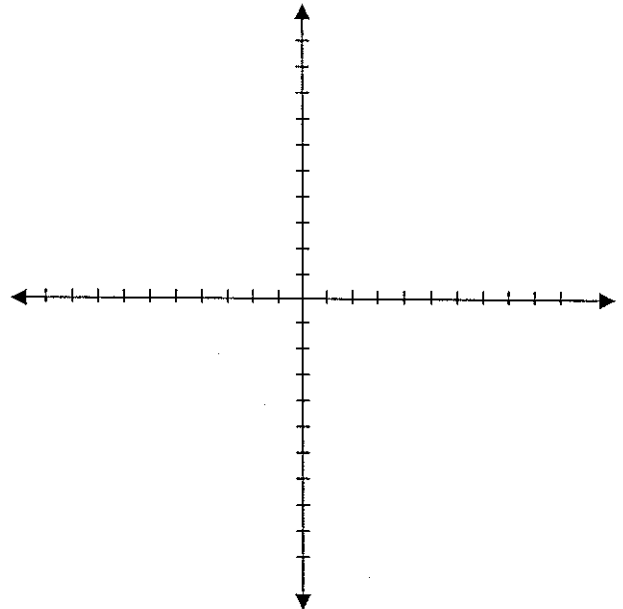
a) Find the y intercept and any x intercepts (if none exist state this):

x-int:

y-int:

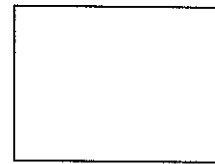
b) Find the vertex.

c) Graph (Label your points)

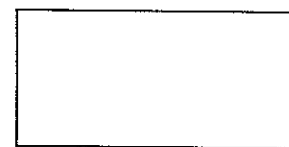


22. Solve for x: $x^2 = x + 4$

23. Simplify: $\sqrt{\frac{75}{12a^4}}$



24. The sum of a number and its square is 30. Find all possible values for the number.
(Show all work for credit.)



25. Graph: $2y + x = 4$. (Label at least two points on the graph!)

