

Problem Set
Due January 23rd

Name _____

All Work must be shown for credit!!!

This will count as a GRADE. You are expected to do this on your own without a CALCULATOR. This should give you an idea of your preparedness for this course! (3 pts. each)

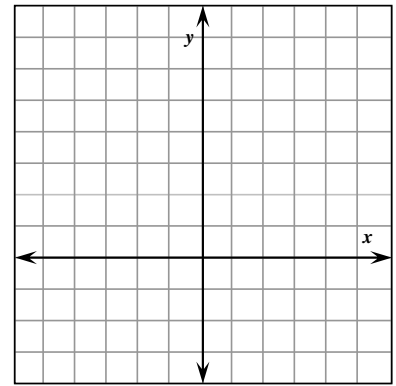
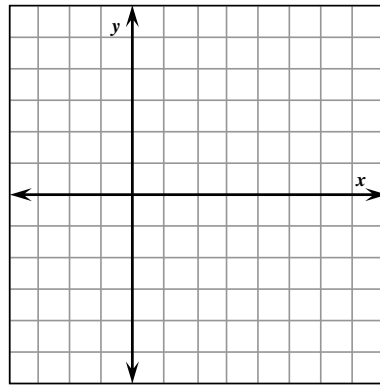
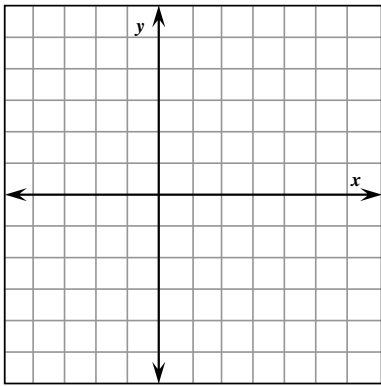
- Write the equation of $f(x) = 2x^2 - 8x + 5$ right 7 units and up 3 units. $y =$ _____
- The equation $y = -[4x + 10]$ describes a function that is translated from a parent function.
 - Describe each of the translations with specific values: (i.e down 5 units) 2. _____
 - _____

Graph the following equations without using a calculator. (Transformations help!)

3. $y = 3|x + 1| - 5$

4. $y = -2(x - 4)^2 + 5$

5. $y = \sqrt{x+3} + 1$



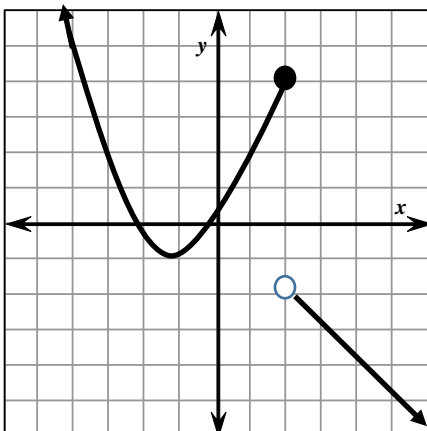
6. If $\frac{ab}{c} + d = e$, then what does bc equal?
 (Think, you can't isolate bc)

$bc =$ _____

7. If $12 - 6(x^3 + y^3) = 48$, what is $(x^3 + y^3)^2 = ?$

$(x^3 + y^3)^2 = ?$ _____

8. Find the domain and range of the relation and determine whether it is a function.



Use Interval Notation (Parentheses & Brackets)

Domain: _____

Range: _____

Function (yes or no) _____

Factor each of the following completely. DO NOT SOLVE!

9. $x^3 + 64$

10. $25x^2 + 30x + 9$

11. $x^4 - 45x^2 + 324$

12. $24x^3 - x^2 - 3x$

13. The width of a large square is $5x + 2$ and the perimeter of a small square is $4x - 8$.

Find the difference between the areas of the two squares.

Difference _____

14. $-2x^4 - 5x^3 + 9x - 1$ is divided by $x + 2$.

What is the remainder? _____

Solve each of the following equations without a calculator. (Quadratic Formula needs to be simplified, if used)

15. $50x^2 = 72$

16. $x^2 + 6x + 6 = 0$

17. $\tan \frac{5\pi}{6} = x$

$x =$ _____

$x =$ _____

$x =$ _____

18. When solving $-4x^2 - 21x - 3 = 0$, what is the sum of the roots? _____

19. The function $y = -16t^2 + 450$ models the height y in feet of a stone t seconds after it is dropped from the edge of a vertical cliff. How long will it take the stone to hit the ground? Round to the nearest tenth.

(Use a graphing calculator)

_____ secs

20. Find the missing value to complete the square. 21. Find all zeros of $2x^4 - 5x^3 + 53x^2 - 125x + 75 = 0$.

$x^2 + 3x +$ _____

Zeros: _____

22. Write a polynomial function in standard form with zeros at -2 and $5 - 3i$. $y =$ _____

23. If $f(x) = \frac{12x^2 + 5x - 2}{9x^2 - 4}$ find the following

23. Hole: (_____ , _____)

Vertical Asymptote _____

Horizontal Asymptote _____

x-intercept (_____ , _____)

Evaluate the following:

24. $\log_{27} \frac{1}{243} = x$

25. $\log_{16} x = \frac{3}{4}$

26. $\log_2(x^2 + 8) = \log_2 x + \log_2 6$

$x =$ _____

$x =$ _____

$x =$ _____