

Due: First day of class!

This packet is to help you review topics that are considered to be pre-requisite knowledge upon entering this course. It is recommended to complete this packet over the course of the summer, and then look at it over the last week of summer before school begins. If you are not familiar with any of the topics, be sure to review them - with a tutor or through tutorials online.

Show all work in the space provided (or on another sheet of paper that you attach).

Read directions carefully. Note - only the problems marked with GDC are to be done with a graphing calculator. All else should be done without a calculator.

Part I: Functions (Evaluate, compositions, domain, range, inverse)

Given the functions: $f(x) = x^2 + 1$ and $g(x) = 2x - 1$; Find the following:

1. $(f + g)(-2)$

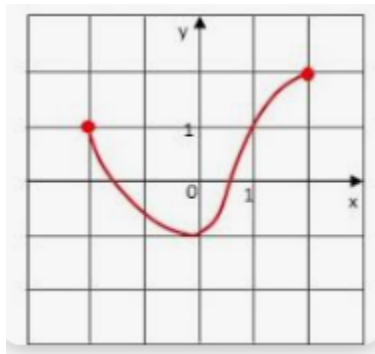
2. $(f - g)(3)$

3. $f(g(x))$

4. $g(f(1))$

5. State the domain and range of the graph:

Domain:



Range:

6. Find the inverse of the function: $f(x) = 4x + 20$

Part II: Quadratics (Graphing, Factoring, Solving)

7. Find the vertex and y-intercept: $y = 3x^2 - 12x + 13$

Factor the following:

8. $x^2 + 3x - 4$

9. $x^2 - 9x + 14$

10. $8x^2 - 20x$

11. $x^2 - 9$

12. $6x^2 + 5x - 4$

13. $3x^2 + x - 2$

Solve the quadratics:

14. By Factoring: $5x^2 + 4x = 1$

15. Solve by taking the Square Root: $36x^2 - 25 = 0$

16. GDC allowed: Solve the system by finding the intersections on your Graphing Calculator :

$$y_1 = f(x)$$

$$f(x) = x^2 - 8x + 9$$

$$x = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}}$$

$$y_2 = g(x)$$

$$g(x) = 5$$

Graph the following:

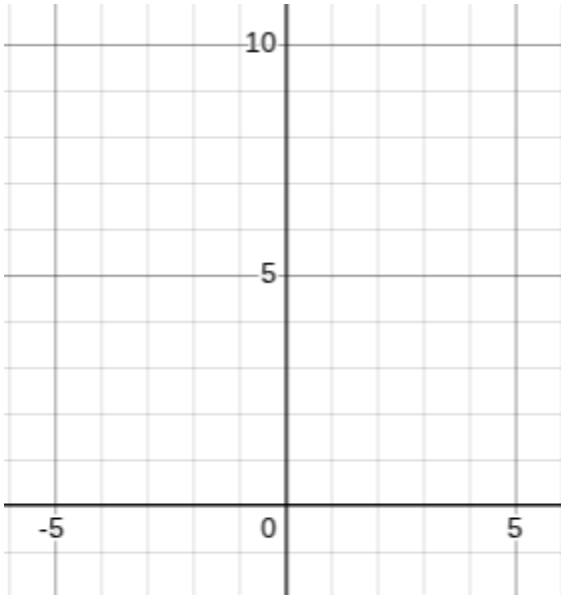
17. $f(x) = -(x + 2)(x - 4)$ State the following:

x intercepts: $\underline{\hspace{2cm}}$ $\underline{\hspace{2cm}}$

Vertex: $\underline{\hspace{2cm}}$

Axis of Symm: $\underline{\hspace{2cm}}$

Y Intercept: $\underline{\hspace{2cm}}$



18. Find the values of p such that the equations below have the given characteristics: *Use the discriminant*

(a) Two different roots: $px^2 + 5x + 2 = 0$

(b) Two equal roots: $2x^2 - 3x + p = 0$

19. Simplify the following:

(a) $x^{-3}(x^5 + x^3)$ $\underline{\hspace{2cm}}$

(b) $(2x^6)^2$ $\underline{\hspace{2cm}}$

(c) $\frac{2xy^6z^{-2}}{8xyz^8}$ $\underline{\hspace{2cm}}$

19 continued: Simplify the following:

(d) $(3x - 1)^2$

(e) $\frac{\frac{3}{x+1}}{1 - \frac{1}{x+1}}$

(f) $\left(\frac{9}{25}\right)^{\frac{1}{2}}$

(f) $(2x - 1)(2x + 1)$

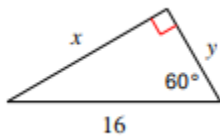
Solve the following:

20. *answer in simplest radical form: $(x - 12)^2 = 18$

21. $\sqrt{x - 10} - 4 = 0$

22. Geometry: Solve for the unknown side or angle:

(a)



(b)



(c) Solve for the angle of elevation:

