ARE YOU READY FOR PAP PRECALCULUS? **Name _____**

Factor out GCF.

1) $12a^3b + 96a^2b + 84ab$

2) $12x^2y^5 + 27xy^2 - 3x^3y^3$

Try factoring the following expressions completely.

3) $x^2 + 2x - 15$

4) $2x^2 + 7x - 4$

5) $x^2 - 9$

6) $6x^2 - 7x - 5$

7) $xy^5 - 16xy$

8) $x^3 - 2x^2 + 3x - 6$

9) $3x^2 - 5x + 2$

10) $6x^3 - 2x + 3x^2 - 1$

Sum/Difference of Cubes formulas:

11) $x^3 - 8$

12) $u^3 + 27v^3$

Simplify the following:

Multiply and divide fractions:

13) $\frac{x^2+7x+12}{12} \bullet \frac{4}{x+4}$

14) $\frac{x^2-4}{2x-4} \bullet \frac{2}{x+2}$

Adding and subtracting fractions (remember: you need a common denominator for these):

15) $\frac{x}{5}+\frac{3x}{4}$

16) $\frac{5x}{7}-\frac{x-4}{2}$

Simplify the following as much as possible. Combine like terms and eliminate parentheses in your final answer.

17) $5z-\left[3z-\left(10z+8\right)\right]$

18) $(3xy)(-2x^3y^2)$

19) $(3x+6)(x+2)$

20) $(x-2)(x^2-2x+5)$

21) $\frac{x+1}{x^2-2x-3}$

22) $\frac{x}{x^2+5x}$

Solve each equation without using a calculator. Show all work

23) $x^2 - 2x - 8 = 0$

24) $2x^2 = 19x + 33$

25) $\frac{5x-4}{5x+4} = \frac{2}{3}$

26) $10 - \frac{13}{x} = 4 + \frac{5}{x}$

27) $x^2 = 11$

28) $(x - 12)^2 = 16$

29) $2x^2 - 5x - 3 = 0$

30) $4x + 1 = \frac{3}{x}$

31) $\frac{5x}{4} + \frac{1}{2} = x - \frac{1}{2}$

32) $x^2 + 8x - 4 = 0$

33) $x^3 + 2x^2 + 3x + 6 = 0$

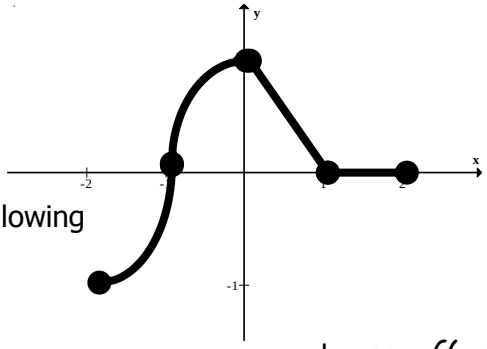
34) $\sqrt{2x} - 10 = 0$

35. Find the domain of each function

a) $f(x) = \dfrac{3x+1}{x+2}$

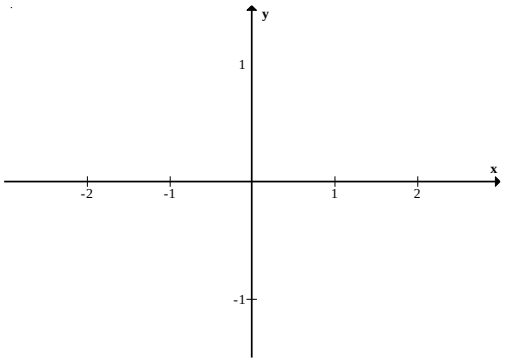
b) $f(x) = \sqrt{x^2 - 4}$

36. The given graph is f(x).

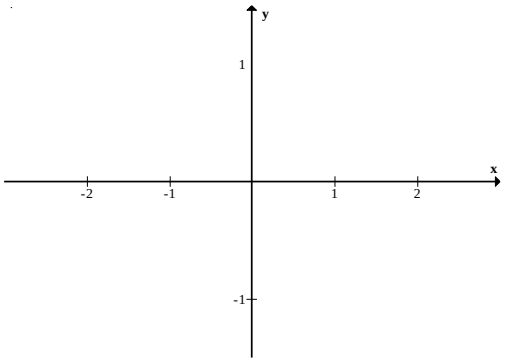


Carefully sketch a graph of each of the following

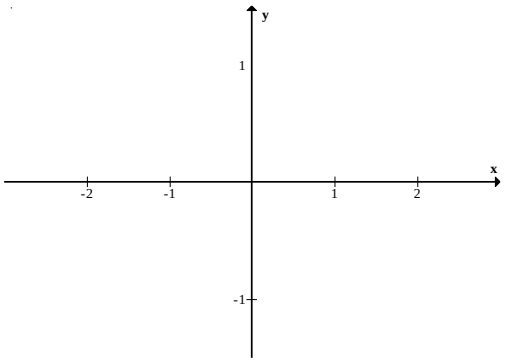
a. $y = -f(x)$



b. $y = f(-x)$



c. $y = f(x-1)$



d. $y = f(x) - 1$