Precalculus Pretest **Name** ___________________________

Part I

1. Simplify: $(x^2 + 3x + 4) - (x^2 - 3x - 2)$ 1. __________________

2. Solve for x: $\frac{x}{2} - \frac{2}{3} = \frac{1}{12}$ 2. __________________

3. Solve by factoring: $3x^2 - 2x - 1 = 0$ 3. __________________

4. The quadratic formula is $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Use the quadratic formula to solve $x^2 - 2x - 2 = 0$ 4. __________________

5. The base of a triangle is 2 feet less than its height.
   Its area is 12 square feet. Find its base and height. 5.__________________

6. Sketch the graph of $y = x^2 - 2x - 3$

7. Divide: $\dfrac{x}{x^2 - 1} \div \dfrac{x^2}{x^2 - 2x + 1}$

7. ________________

8. Add: $\dfrac{1}{x} + \dfrac{1}{y}$

8. ________________

9. Simplify: $\left(\dfrac{a^2b}{ab^3}\right)^2$

9. ________________

10. Subtract: $\sqrt{72x^3} - x\sqrt{50x}$

10. ________________

Part II

1. Given the function $y = f(x) = \sqrt{x-2}$

   a. the domain of function f is ‌‌ ‌ a. ____________________

   b. the range of function f is ‌ ‌ b. ____________________

2. Match each function with its function family.

   a. $y = x^2$ ‌ (i) linear ‌ a. ____________________

   b. y = 2x ‌ (ii) exponential ‌ b. ____________________

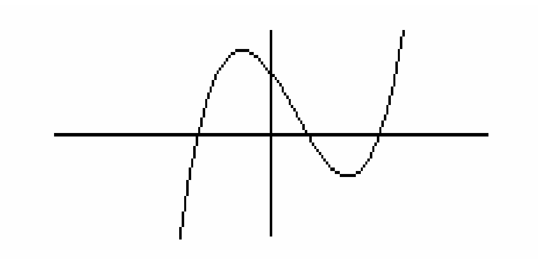
   c. $y = 2^x$ ‌ (iii) power ‌ c. ____________________

3. a. Identify the linear function. ‌ a. ____________________

   b. Find the equation of its line. ‌ b. ____________________

x	f(x)	g(x)	h(x)
0	-2	-2	-2
1	1	1	1
2	10	4	-2
3	25	7	1

4. Identify a possible function for the graph.



a. y=(x-2)(x+1)(x+3) ‌ 4. ____________________

b. y= -(x+2)(x-1)(x-3)

c. y=(x+2)(x-1)(x-3)

5. Given $y = f(x) = \dfrac{x^2 - 4}{x + 1}$

Identify:

   a. vertical asymptotes ‌ a. ____________________

b. x-intercepts b. ________________

c. y-intercepts c. ________________

d. end behavior d. ________________

6. Given $f(x) = x^2$ and $g(x) = x - 2$

a. f(g(x)) = a. ________________

b. g(f(2)) = b. ________________

7. Use special triangles to find the <u>exact</u> values:

a. sin 60° a. ________________

b. cos 45° b. ________________

8. A right triangle has one acute angle which measures 25° and the side opposite that angle measures 3 inches. Find the hypotenuse. 8. ________________

9. Sketch the graph of y = 3 sin (2x) + 1

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10. Given the identity sin(2x) = 2 sin(x) cos(x) , solve the equation for all x, 0° # x < 360° 10. ________________

sin(2x) + 2 sin(x) = 0