TRIGONOMETRY/PRECALCULUS SUMMER ASSIGNMENT

Name: _____

Summer 2022

Directions: Complete all of the problems in this packet. Neatly label and show your work and indicate your answer in the space provided. If you need additional space, attach notebook or graph paper with your work clearly labeled. Do not use a calculator unless the directions state to do so.

This packet will be collected on the first day of school, and you will have a test on the material within the first two weeks of school.

RATIONALIZING DENOMINATORS

Simplify each of the following expressions by rationalizing the denominator (no radicals should be left in the denominator). Your final answer should not be a written as a decimal

1. $\frac{2}{\sqrt{3}}$

2. $\frac{15}{\sqrt{5}}$

3. $\frac{4}{2\sqrt{7}}$

FACTORING

Factor each expression completely.

4. $x^2 + 4x - 21$

5. $3x^3 - 3x^2 - 90x$

6. $6x^2 + 7x - 3$

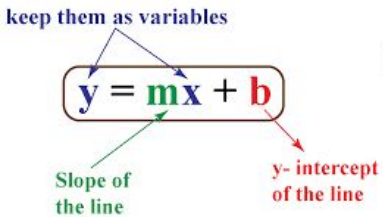
7. $x^3 + 5x^2 - 2x - 10$

8. $x^4 - 4x^2 - 45$

9. $7x^2 - 10x + 3$

LINEAR FUNCTIONS

Slope - intercept form



$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Write the equation of each line in slope-intercept form.

10. line with a slope of 1/2 and a y-intercept of -5

11. line with a slope of 7 that passes through the point (4, 5)

12. line that passes through the points (5, 7) and (5, -6)

13. line that passes through the points (6, -4) and (-2, 2)

EVALUATING FUNCTIONS

Given $f(x) = \frac{2}{x+4}$ and $g(x) = x^2 - 2$ evaluate each of the following function values.

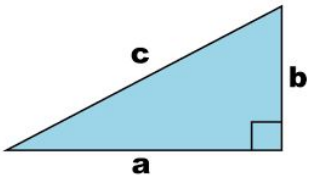
14. f(20)

15. g(x - 4)

16. $(f \circ g)(x)$

17. (fg)(x)

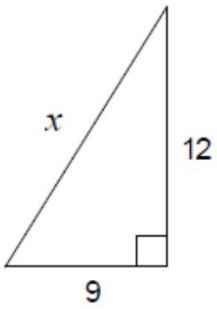
PYTHAGOREAN THEOREM



$a^2 + b^2 = c^2$

Find each missing side of the triangle with the Pythagorean Theorem.

18.



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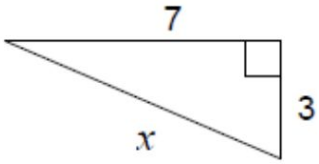
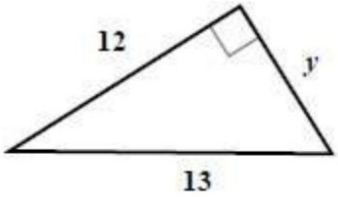
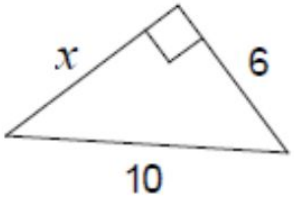


20.



21.



SOLVING EQUATIONS

Solve each equation for x.

22. $7(x-2) = (4x+1) - 21$

23. $2x^2 - 3x - 2 = 0$

24. $(3x-1)^2 = 75$

25. $-3|4x-7| = -15$

26. $\sqrt[3]{3x+4} = 7$

27. $\frac{1}{x-1} - \frac{1}{x+1} = \frac{2}{x^2-1}$

COMBINING FRACTIONS

Simplify each expression.

22. $\frac{1}{3}+\frac{1}{4}$

23. $\frac{3}{2}-\frac{1}{3}$

24. $\frac{\pi}{3}+\frac{\pi}{4}$

25. $\frac{2\pi}{3}-\frac{\pi}{6}$

26. $\frac{11}{6}\cdot\frac{4}{3}$

27. $\frac{11}{6}\div\frac{4}{3}$