

Name _____

Summer Review needed for Trigonometry:

SHOW ALL WORK!

Perform the indicated operations. Write the resulting polynomial in standard form.

1. $-(5x^2 - 1) - (-3x^2 + 5)$ 2. $(x - 3 + y)(x - 3 - y)$ 3. $(2x^3 - 3)^2$

Factor each expression completely.

1. $2x^3 - 6x$ 2. $(x - 1)^2 - 4$ 3. $9x^2 - 12x + 4$
4. $5x^2 + 13x - 36$ 5. $9x^2 - 3x + 2$ 6. $5x^2 + 26x + 5$
7. $6x^2 - 64$ 8. $16 + 6x - x^2$ 9. $2x^3 - x^2 - 6x + 3$

Given $f(x) = -x^2 + 3$ $g(x) = 3x - 2$ Find and simplify each of the following:

1. $f^{-1}(x)$ 2. $g^{-1}(x)$

Determine the equation of the inverse of the following functions:

1) $f(x) = \frac{1}{3}(x+1)$ 2) $g(x) = 10y + 2$

Solve each quadratic equation **Three** ways:

(a) by factoring (when possible)

(b) by quadratic formula

(c) by completing the square

1. $x^2 + 6x - 16 = 0$ 2. $2x^2 + 6x + 7 = 0$ 3. $0 = 3x - 2x^2 + 2$
4. $4x^2 - 9 = 0$ 5. $2x^2 + 6x + 7 = 0$ 6. $x^2 - 4x + 21 = 0$

Simplify each expression. Express each answer in standard radical form.

1. $\sqrt{(54xy^4)}$

2. $\sqrt[3]{(16x^5)}$

3. $5\sqrt{x} - 3\sqrt{x} + 6\sqrt{y}$

4. $2\sqrt{50} + 12\sqrt{8}$

5. $(5 + \sqrt{x})(5 - \sqrt{x})$

6. $(2 - \sqrt{3})(3 - \sqrt{6})$

7. $5\sqrt{2} + 3\sqrt{2} - 4\sqrt{2}$

Rationalize the denominator.

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

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

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

4. $\frac{5}{(2\sqrt{10}) - 5}$

Simplify each expression:

1. $\frac{\frac{2}{3}}{\frac{4}{9}}$

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

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

4. $\frac{2}{x+2} - \frac{6}{x-2}$

5. $\frac{4x^2 + 20x}{9 - 6x - 3x^2} \div \frac{x+5}{x^2 - 9}$

6. $1 - \frac{3}{5}$

Simplify each expression. Express all answers with positive exponents.

1. $25x^8 / 10x^4$

2. $(4/y)^3 (3/y)^2$

3. $(4x)^{-2} (8x^4)$

4. $(2x^5)^0$

5. $(\sqrt[3]{162a^7b^3c^5})(54abc)^{-1/3}$

Solve each equation.

$$1. \quad \frac{x-4}{x+2} + \frac{2}{x-2} = \frac{17}{x^2-4}$$

$$2. \quad \frac{x+3}{2x} = \frac{5}{8}$$

$$3. \quad \frac{3}{11} = \frac{x}{8}$$

$$4. \quad \frac{4}{x} = \frac{15}{14}$$

$$5. \quad x - \frac{3}{5} = \frac{13}{14}$$

Complete a table like the ones below for each function. Graph each equation, identify the domain & range, and where the function is equal to 0.

x	y

or

x	f(x)

$$1. \quad y=2x+3$$

$$2. \quad 0=2x^2 + y$$

$$3. \quad f(x) = x^2 + x - 3$$

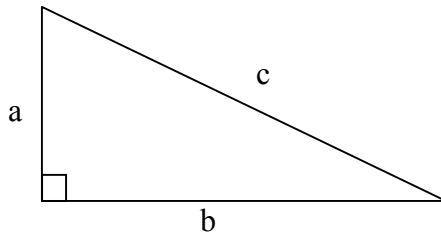
$$4. \quad f(x) = x^2 - 3$$

Find the slope and distance between the two points:

$$1. \quad (1, 4), (8, 4)$$

$$2. \quad (-3, -4), (-3, 6)$$

Using the Pythagorean Theorem, find the missing side.



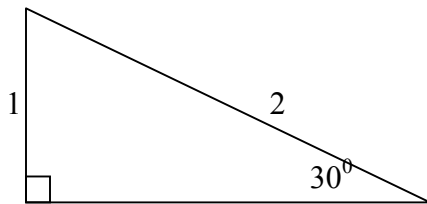
1) $a=7$ $b=24$

2) $b=13$ $c=35$

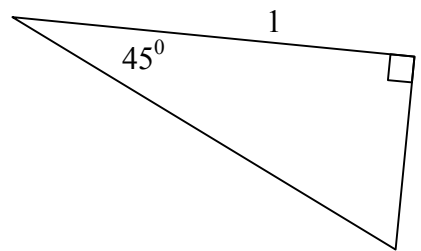
3) $a=54$ $c=100$

Find all the sides and angles of the following triangles:

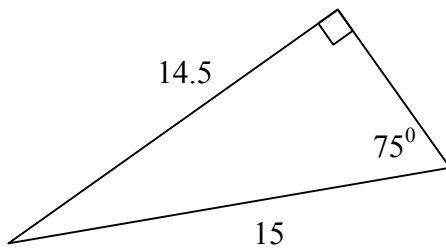
1.



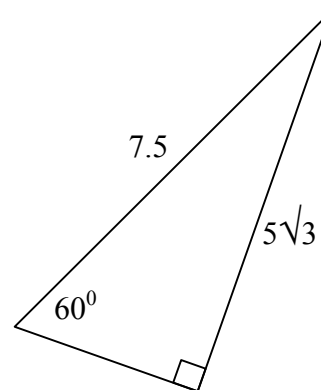
2.



3.



4.



Describe the transformations applied to $y=x^2$ for the following functions:

1. $f(x) = 2x^2$

2. $f(x) = -x^2$

3. $f(x) = (x-1)^2$

4. $f(x) = x^2 - 35$. $f(x) = 3(x-2)^2$

Find the area and circumference of the following circles:

1. radius = 1

2. diameter = 4

3. radius = 2.5