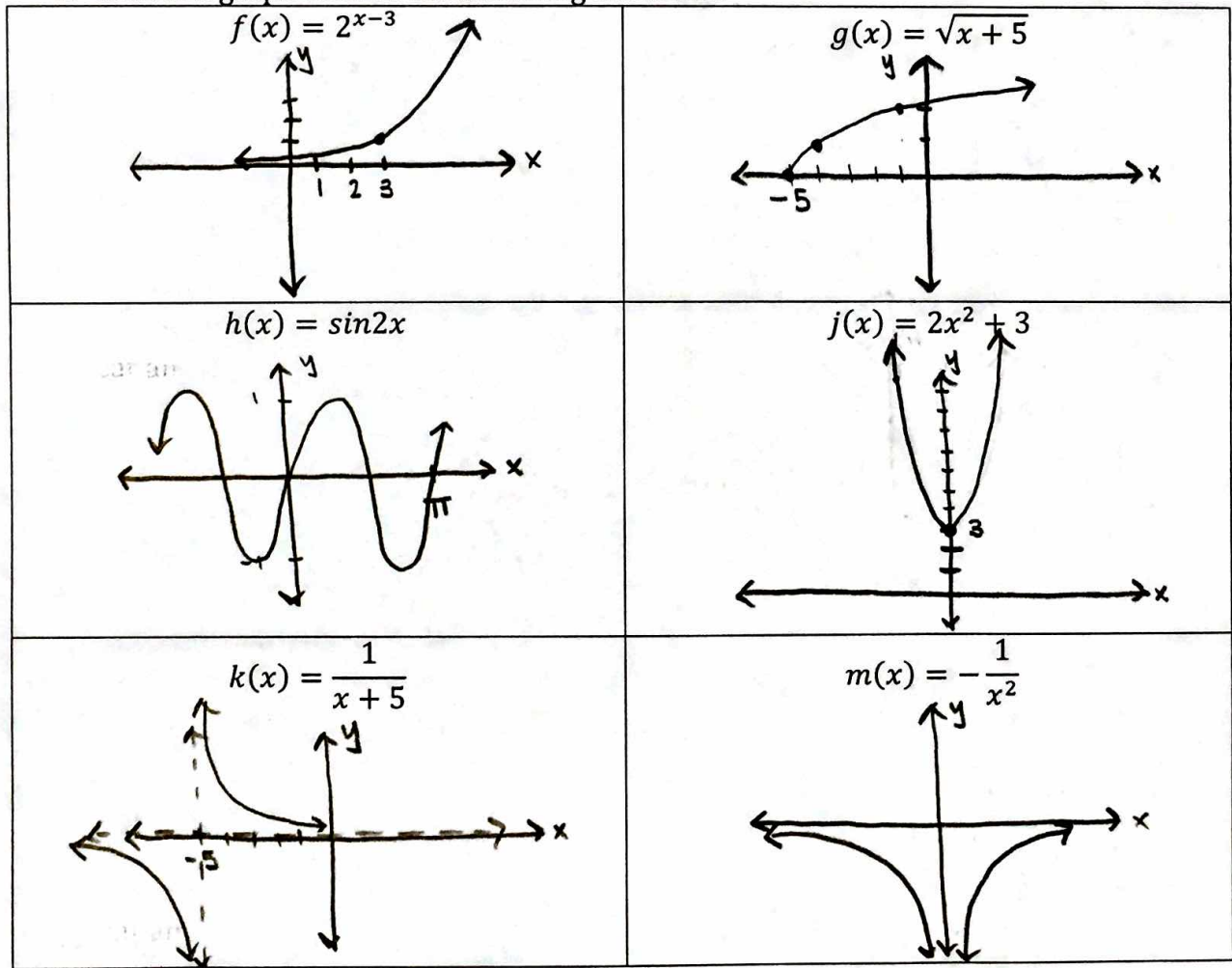


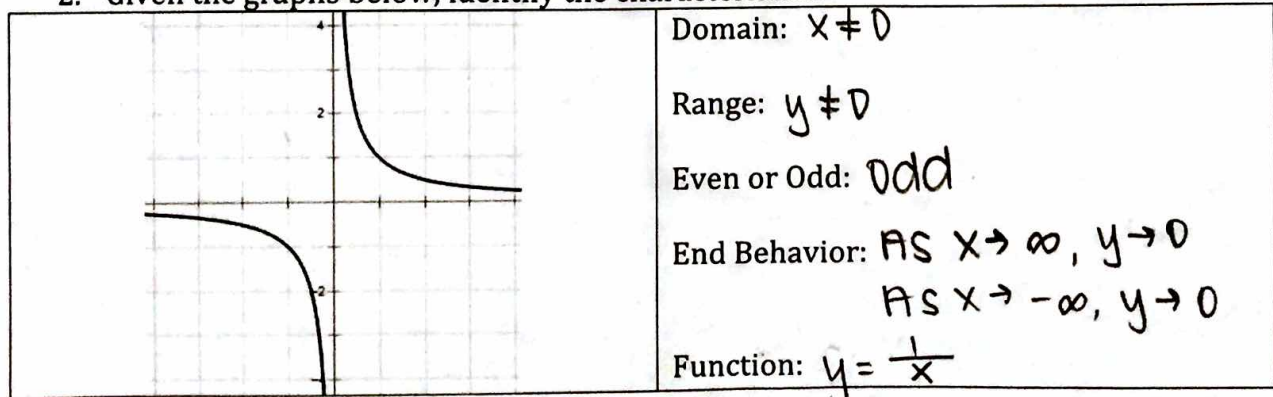
WJHS Summer Math Packet
For Rising Precalculus Students

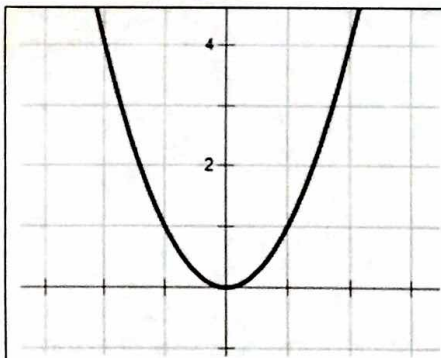
This packet is an optional review of the skills that will help you be successful in Precalculus. By completing this packet over the summer, you will not only keep your brain mathematically active but you will be able to identify skills that you need to strengthen for your year ahead. Complete the exercises in the space provided then check your answers with the Answer Key. If you struggle with any of the exercises, please seek help from a friend, parent, sibling, book, or online resource. Enjoy your math review and we look forward to meeting you in August!

1. Sketch a graph each of the following functions.



2. Given the graphs below, identify the characteristics.





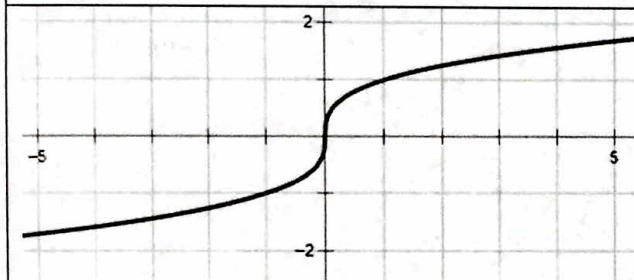
Domain: \mathbb{R}

Range: $y \geq 0$ OR $[0, \infty)$

Even or Odd: even

End Behavior: AS $x \rightarrow \infty, y \rightarrow \infty$
AS $x \rightarrow -\infty, y \rightarrow \infty$

Function: $y = x^2$



Domain: \mathbb{R}

Range: \mathbb{R}

Even or Odd: odd

End Behavior: AS $x \rightarrow \infty, y \rightarrow \infty$
AS $x \rightarrow -\infty, y \rightarrow -\infty$

Function: $y = \sqrt[3]{x}$

3. Solve each of the following equations.

$$3(2x - 6) = x - 16$$

$$x = \frac{2}{5}$$

$$2x^2 = 72$$

$$x = \pm 6$$

$$\frac{3}{x - 10} = 15$$

$$x = \frac{51}{5}$$

$$x^2 + 9x = -20$$

$$x = -5, -4$$

$$16x^2 = 8x - 1$$

$$x = \frac{1}{4}$$

$$3\sqrt{x - 4} = 9$$

$$x = 13$$

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

$$X = \frac{6}{17}$$

$$\frac{2}{3x+6} = \frac{x+2}{x^2-10}$$

$$X = -8, -4$$

$$x^2 + 2x = -7$$

$$X = \frac{-2 \pm i\sqrt{24}}{2} \text{ or } x = -1 \pm i\sqrt{6}$$

$$2^{x-4} = 16^{-3x}$$

$$X = \frac{4}{13}$$

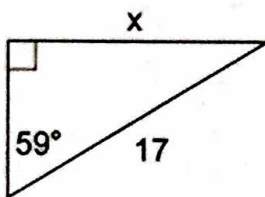
$$10^{x+2} = 65$$

$$X = -2 + \log 65 \approx -0.187$$

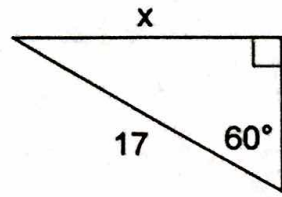
$$4x^{\frac{2}{3}} + 1 = 65$$

$$X = 64$$

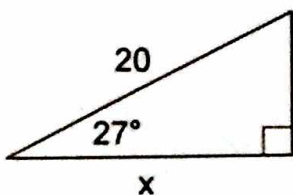
4. Solve for the missing measure in each of the following triangles.



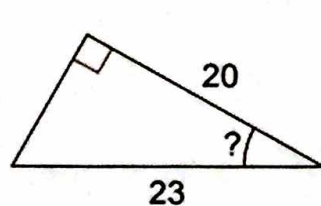
$$x = 17 \sin 59^\circ$$
$$x \approx 14.572$$



$$x = 17 \sin 60^\circ$$
$$x \approx 14.722$$



$$x = 20 \cos 27^\circ$$
$$x \approx 17.820$$



$$? = \cos^{-1}\left(\frac{20}{23}\right)$$
$$? \approx 29.592^\circ$$

5. Find an angle with the same sine value as each of the following angles.

a. 45°

b. 125°

c. 319°

135°

55°

221°

6. Find an angle with the same cosine value as each of the following angles.

a. 45°

b. 125°

c. 319°

315°

235°

41°

7. Evaluate each of the following expressions.

a. $\log_2 4$

b. $27^{\frac{1}{3}}$

c. 100^{-1}

2

3

$\frac{1}{100}$

d. $\log_4 64$

e. $\log_{25} 5$

f. 7^{-2}

3

$\frac{1}{2}$

$\frac{1}{49}$

g. $8^{\frac{4}{3}}$

h. $\log_{10} \frac{1}{10}$

16

-1