JEDDAH KNOWLEDGE INTERNATIONAL SCHOOL

(DP) Grade 11

Summer work Math American Precalculus
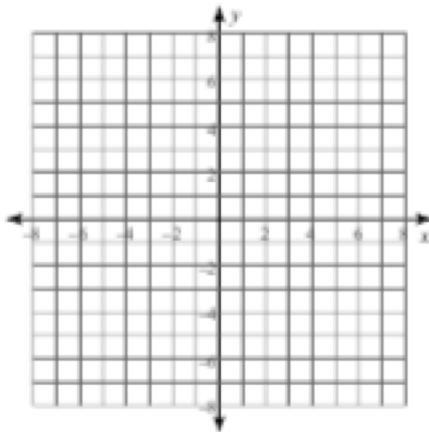
Name :_____

Teacher :_____
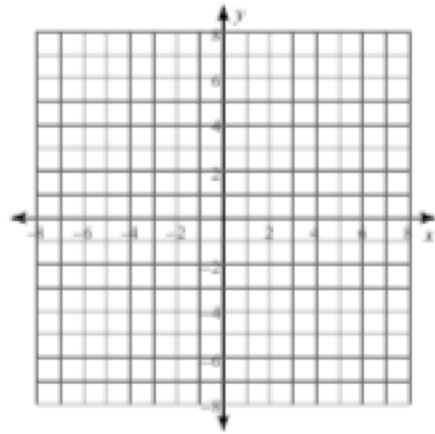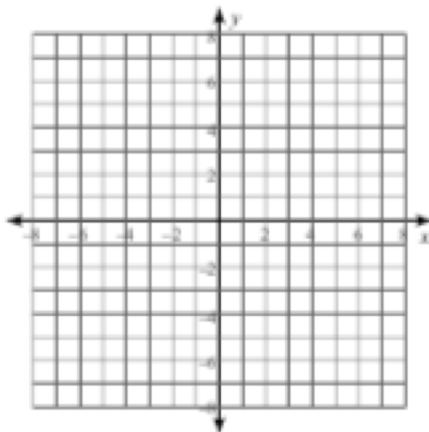
2020 -   2021

Sketch the graph of each function.

1) $f(x) = \begin{cases} -2x - 1, & x \le 2 \\ -x + 4, & x > 2 \end{cases}$
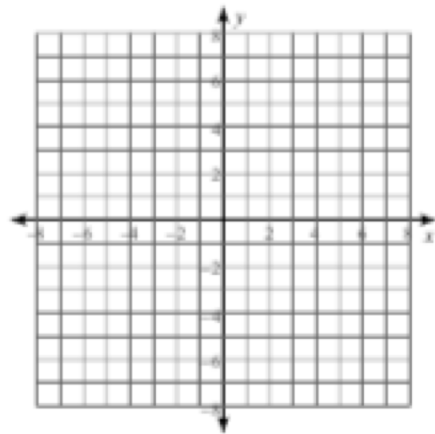
2) $f(x) = \begin{cases} -4, & x \le -2 \\ x - 2, & -2 < x < 2 \\ -2x + 4, & x \ge 2 \end{cases}$

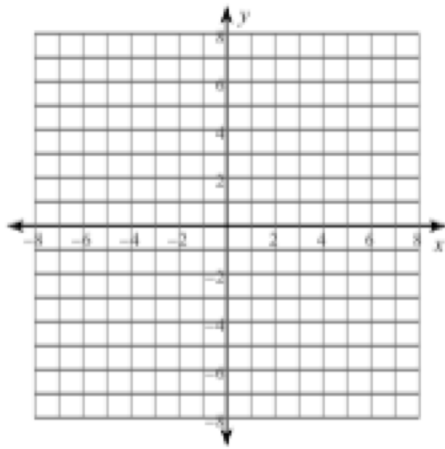3) $f(x) = \begin{cases} -2^x, & x < -4 \\ -|x|, & -4 \le x \le 0 \\ 4 - x^2, & x > 0 \end{cases}$

4) $g(x) = \begin{cases} -6, & x < -2 \\ (x + 1)^4, & x \ge -2 \end{cases}$
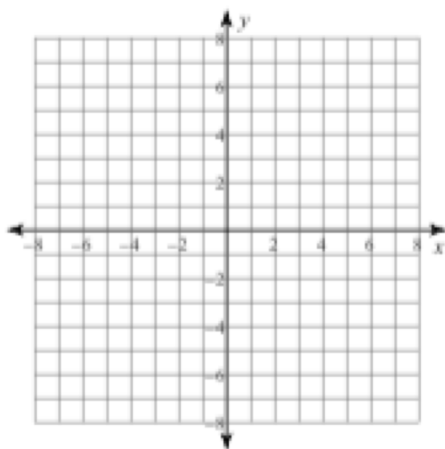
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For each function, identify the points of discontinuity, holes, intercepts, horizontal asymptote, domain, limit behavior at all vertical asymptotes, and end behavior asymptote. Then sketch the graph.
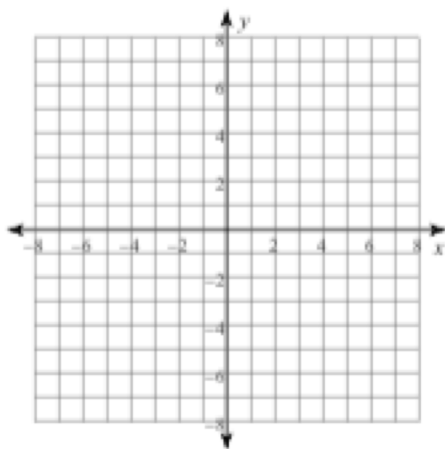
1) $f(x) = \dfrac{1}{x-3} + 3$

2) $f(x) = -\dfrac{3}{x-2} - 2$

3) $f(x) = \dfrac{x^2 - 4}{x^2 - 9}$

Solve each equation. Round your answers to the nearest ten-thousandth.

1) $\log x - \log 2 = \log 17$

2) $\log 8 + \log x = 1$

3) $\log 3 + \log x = 2$

4) $\log x - \log 2 = 1$

Solve each equation.

5) $\log_8 (x^2 - 1) - \log_8 3 = 1$

6) $\log 3x^2 - \log 3 = 2$

7) $\log_8 4x - \log_8 5 = \log_8 39$

8) $\log_7 (x + 4) - \log_7 x = 3$

9) $\ln (5 - 2x) + \ln 9 = 4$

10) $\ln (3x - 1) + \ln 4 = \ln 15$

11) $\ln (10 - 2x^2) - \ln 5 = \ln 2$

12) $\ln 5 - \ln (4 - 4x) = \ln 33$

Use identities to find the value of each expression.

1) If $\sin \theta = -0.93$, find $\cos\left(\theta - \dfrac{\pi}{2}\right)$.

2) If $\tan(-\theta) = -1.48$, find $\cot\left(\dfrac{\pi}{2} - \theta\right)$.

3) If $\cos\left(\theta - \dfrac{\pi}{2}\right) = -0.52$, find $\sin \theta$.

4) If $\sin \theta = 0.16$, find $\cos\left(\dfrac{\pi}{2} - \theta\right)$.

5) If $\sec \theta = 4.45$, find $\csc\left(\dfrac{\pi}{2} - \theta\right)$.

6) If $\sin\left(\theta - \dfrac{\pi}{2}\right) = -0.22$, find $\cos(-\theta)$.

7) If $\tan \theta = -0.87$, find $\cot\left(\dfrac{\pi}{2} - \theta\right)$.

8) If $\csc\left(\dfrac{\pi}{2} - \theta\right) = -1.11$, find $\sec(-\theta)$.

9) Find $\sin \theta$ and $\sec \theta$
   if $\tan \theta = 3$ and $\cos \theta < 0$.

10) Find $\csc \theta$ and $\sin \theta$
   if $\tan \theta = \dfrac{7}{4}$ and $\sin \theta < 0$.

11) Find $\cos \theta$ and $\csc \theta$
   if $\tan \theta = -\dfrac{3}{2}$ and $\sin \theta < 0$.

12) Find $\csc \theta$ and $\sec \theta$
   if $\cot \theta = \dfrac{3}{2}$ and $\cos \theta > 0$.

13) Find $\cot \theta$ and $\cos \theta$
   if $\csc \theta = \dfrac{5}{2}$ and $\cos \theta < 0$.

14) Find $\cos \theta$ and $\sec \theta$
   if $\sin \theta = -\dfrac{1}{4}$ and $\cos \theta < 0$.

15) Find $\csc \theta$ and $\sin \theta$
   if $\tan \theta = -\dfrac{2}{3}$ and $\csc \theta < 0$.

16) Find $\cos \theta$ and $\sec \theta$
   if $\cot \theta = -\dfrac{1}{2}$ and $\cos \theta > 0$.