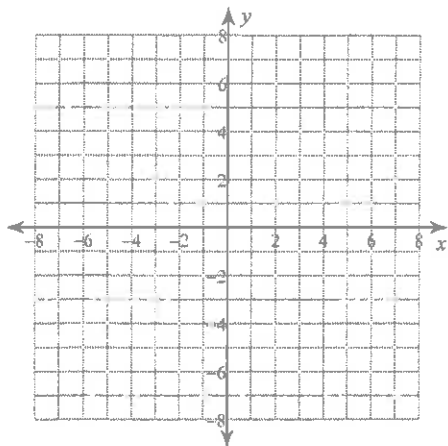
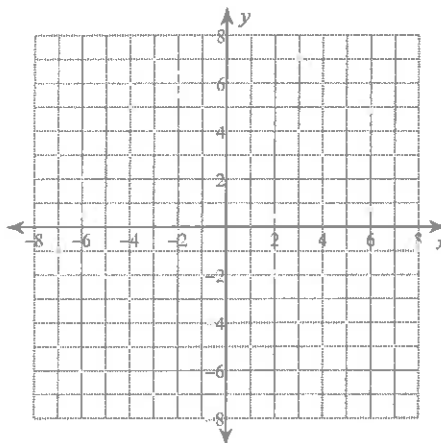


Sketch the graph of each function.

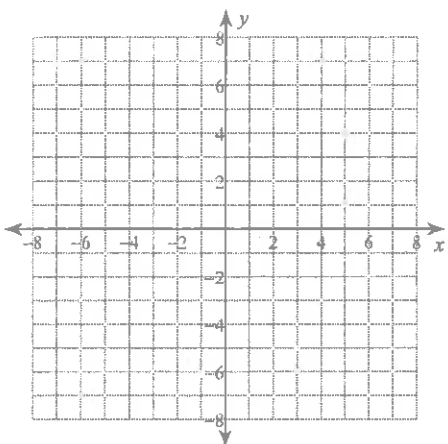
$$1) f(x) = \begin{cases} -2x, & x \leq 0 \\ x - 2, & x > 0 \end{cases}$$



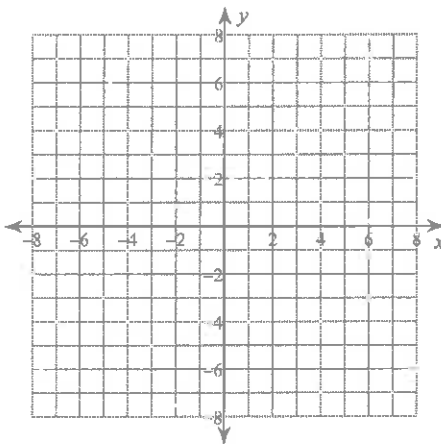
$$2) h(x) = \begin{cases} (x + 5)^4, & x < -4 \\ \sqrt{x + 2}, & -4 \leq x < 4 \\ \sqrt{x - 4}, & x \geq 4 \end{cases}$$



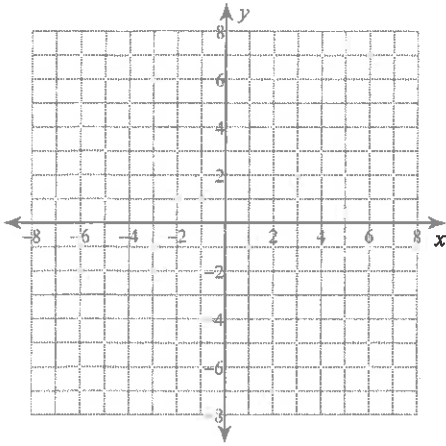
$$3) g(x) = \frac{1}{x - 2}$$



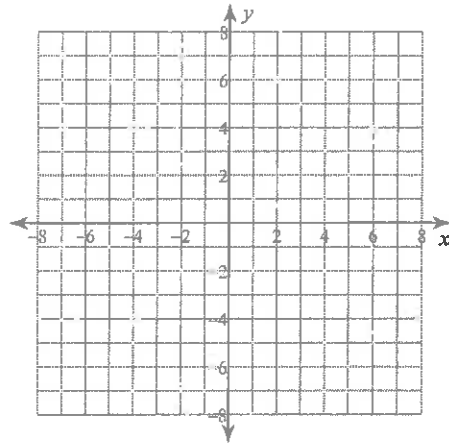
$$4) g(x) = \sqrt{-(x + 3)} - 3$$



$$5) g(x) = -\frac{1}{3}(x-1)^3 - 2$$



$$6) g(x) = -3\sqrt{-(x+1)} - 1$$



**Solve each equation.**

$$7) 3^{-3n} = 3^{2n}$$

$$8) 5^{-n} = 5^{-3n-1}$$

$$9) 625^{3n} = \frac{1}{25}$$

$$10) 2^{v+3} = 64$$

$$11) 32^{-3x-2} \cdot 4 = 8^{x+3}$$

$$12) \frac{64^x}{64^{3x-1}} = 16$$

$$13) 125^a \cdot 25^{3b} = 125^{-2b+2}$$

$$14) \left(\frac{1}{8}\right)^{-3n} \cdot 4^{2n} = 64$$

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

$$15) 18^{7n} + 3 = 4$$

$$16) -8^{x+10} = -56$$

$$17) 6^{a-7} - 3 = 43$$

$$18) -3 \cdot 4^{3x-9} - 2 = -90$$

$$19) 4 \cdot 3^{10b-5} + 9 = 86.5$$

$$20) -9^{9m-1} + 6 = -57$$

**Solve each equation.**

21)  $\log_7 4 + \log_7 x = \log_7 69$

22)  $\log_5 4 - \log_5 x = \log_5 42$

23)  $\log_2 7 + \log_2 x = 2$

24)  $\log_7 x + \log_7 (x + 6) = 1$

25)  $\log_9 (x - 3) - \log_9 x = 1$

26)  $\log_9 10 - \log_9 (x + 3) = \log_9 58$

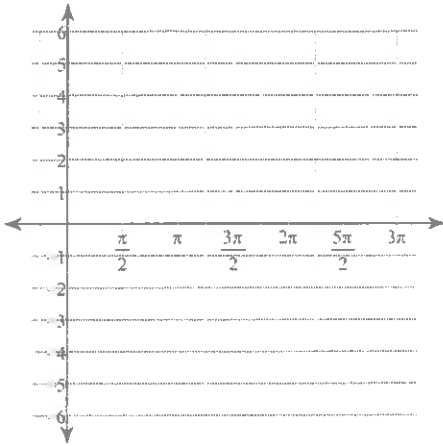
27)  $\ln 7 + \ln (4 - 2x^2) = \ln 23$

28)  $\ln 8 - \ln (2x + 10) = 2$

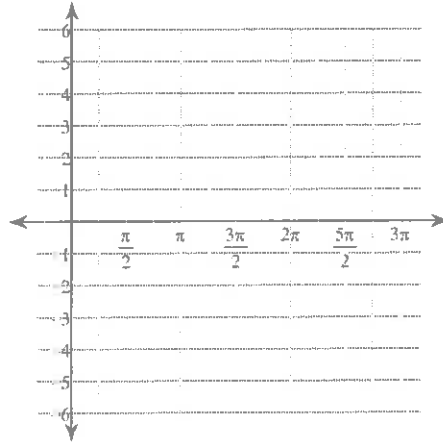
29)  $\ln (5x - 7) - \ln 2 = 4$

Graph each function using radians.

$$30) y = 3\sin\left(\theta + \frac{4\pi}{3}\right) - 2$$

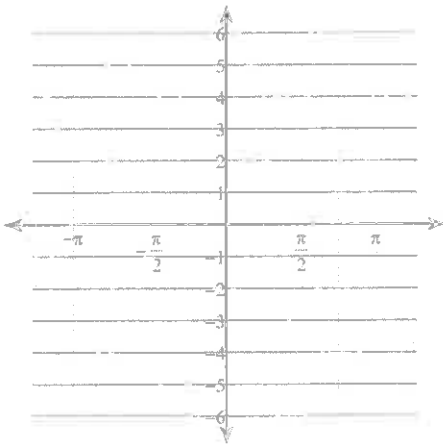


$$31) y = 4\sin\left(\theta + \frac{\pi}{3}\right) + 2$$

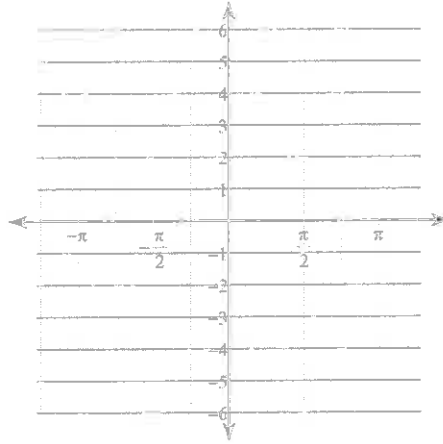


Find the amplitude, the period in radians, the phase shift in radians, and the vertical shift. Then sketch the graph using radians.

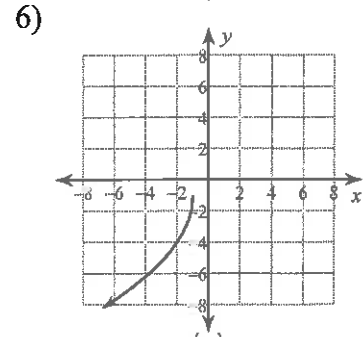
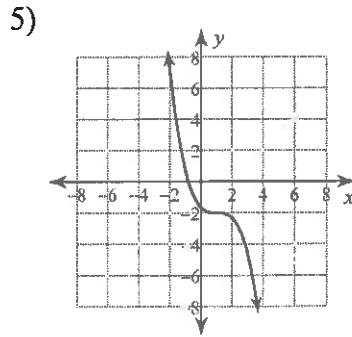
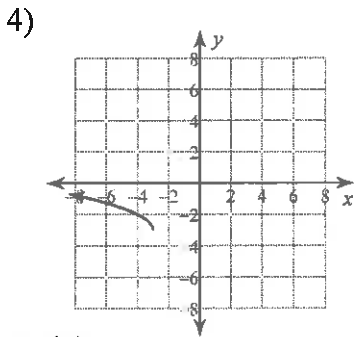
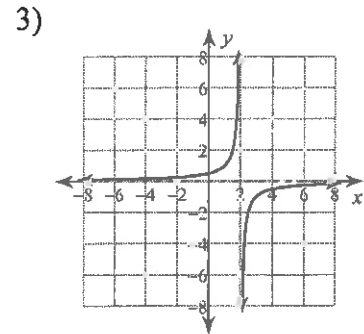
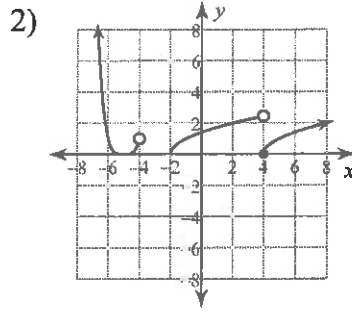
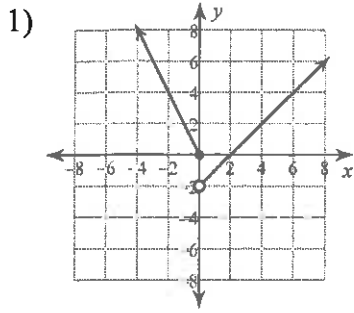
$$32) y = \tan\left(\theta + \frac{3\pi}{4}\right) + 2$$



$$33) y = \frac{1}{2} \tan\left(2\theta + \frac{\pi}{6}\right) - 1$$



# Answers to Caclulus Summer Assignment (ID: 1)



7)  $\{0\}$

8)  $\left\{-\frac{1}{2}\right\}$

9)  $\left\{-\frac{1}{6}\right\}$

10)  $\{3\}$

11)  $\left\{-\frac{17}{18}\right\}$

12)  $\left\{\frac{1}{6}\right\}$

13)  $\left\{\frac{1}{4}\right\}$

14)  $\left\{\frac{6}{13}\right\}$

15)  $0$

16)  $-8.0642$

17)  $9.1368$

18)  $3.8124$

19)  $0.7698$

20)  $0.3206$

21)  $\left\{\frac{69}{4}\right\}$

22)  $\left\{\frac{2}{21}\right\}$

23)  $\left\{\frac{4}{7}\right\}$

24)  $\{1\}$

25) No solution.

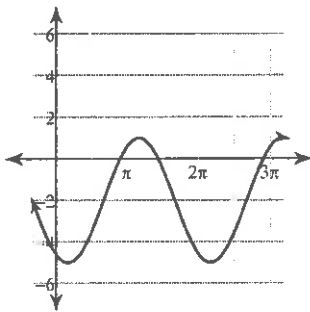
26)  $\left\{-\frac{82}{29}\right\}$

27)  $\left\{\frac{\sqrt{70}}{14}, -\frac{\sqrt{70}}{14}\right\}$

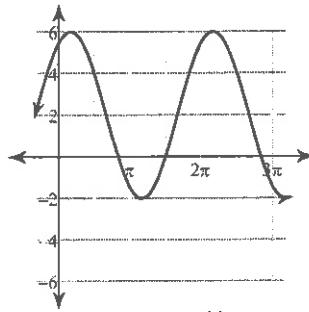
28)  $\left\{\frac{4 - 5e^2}{e^2}\right\}$

29)  $\left\{\frac{2e^4 + 7}{5}\right\}$

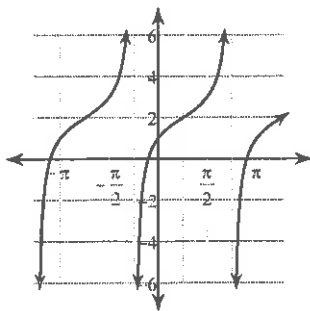
30)



31)

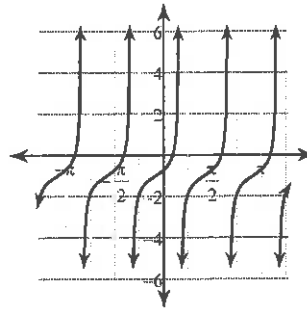


32)



Amplitude: None  
 Period:  $\pi$   
 Phase shift: Left  $\frac{3\pi}{4}$   
 Vert. shift: Up 2

33)



Amplitude: None  
 Period:  $\frac{\pi}{2}$   
 Phase shift: Left  $\frac{\pi}{12}$   
 Vert. shift: Down 1