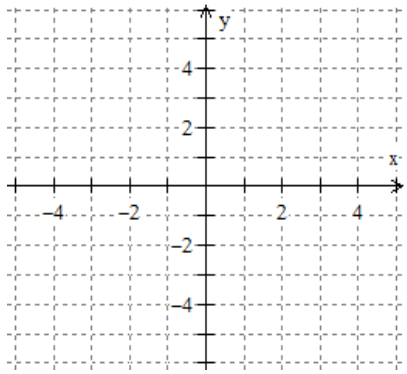
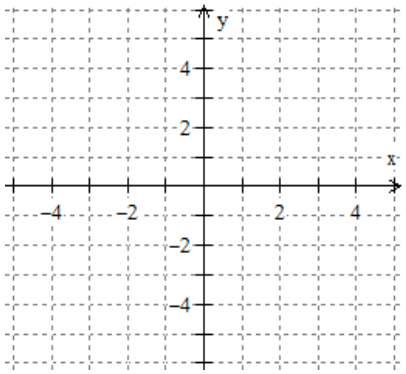
WS 3 – Radians, inequaities, REVIEW for Quiz

1. Graph:

   a. $f(x)=\begin{cases}|x+3|-2\ ;\ x<-1\\ -(x-1)^2+5\ ;\ x\geq -1\end{cases}$

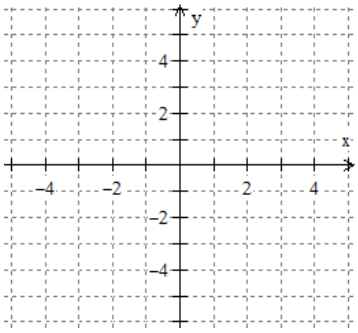
   b. $g(x)=\begin{cases}(x+1)^2\ ;\ x<-1\\ 2\ ;\ -1\leq x\leq 2\\ -\frac{1}{2}x+3\ ;\ x>2\end{cases}$



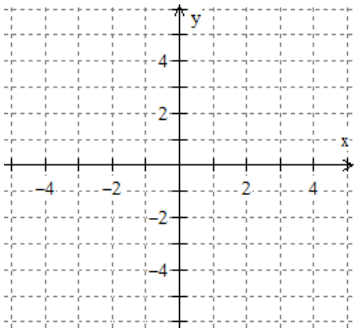


2. Graph each.

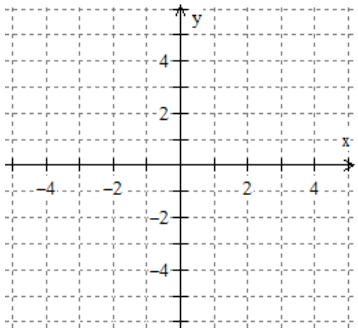
   a. $y=-(x-2)^3-1$



   b. $y=-\sqrt{x+1}+3$



   c. $y=\dfrac{2x-1}{x-2}$



3. Estimate the degree measure of 1.5 radians. Use a picture to justify your answer.
4. Convert each radian measure to degrees.

   a. $\dfrac{5\pi}{4}$

   b. $\dfrac{11\pi}{6}$

   c. $\dfrac{8\pi}{9}$

   d. $\dfrac{17\pi}{18}$

   e. $\dfrac{143\pi}{180}$

5. Convert each degree measure to radians.

   a. 210°

   b. 400°

   c. 120°

   d. 2°

   e. 300°

6. If $f(x)=-x^2-x$ and $g(x)=-2x+1$, find each

   a. $f(-3)$

   b. $g(f(-2))$

   c. $f(g(f(-1)))$

   d. $\dfrac{f(x+h)-f(x)}{h}$

7. Solve each inequality. Write your answer in interval notation.

   a. $2x-4(2x-1)>3(x-1)$

   b. $-3x-1>5$

   c. $2x^3+x^2-6x\geq 0$

   d. $8x^2+14x<15$

8. Find the x and y intercepts of each.

   a. $y=x^3-2x^2-9x+18$

   b. $y=2x^2+5x-3$

   c. $y=\dfrac{2x-5}{x-3}$

9. Name the domain and range of each.

   a. $y=\dfrac{1}{\sqrt{1-x}}$

   b. $y=\sqrt{3-x}$

   c. $y=\dfrac{1}{x+3}$

   d. $y=\sqrt{x^2-4}$

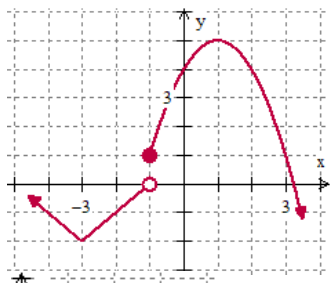
   e. $y=\sqrt{16-x^2}$

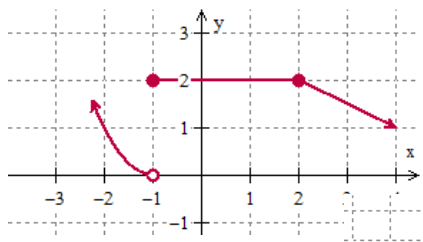
10. Find the equation of the line
    a. Through (2,-4) and (5,-8).
    b. Through (2,5) and (2,-1)
    c. Through (2,4) and parallel to $6x-5y=9$.
    d. Through (-6,1) and perpendicular to $x-3y=3$.
    e. Through (-2,8) and (-4,3) in standard form.

11. Solve the system of equations $\begin{cases} 3x-4y=9 \\ 2x+6y=1 \end{cases}$.

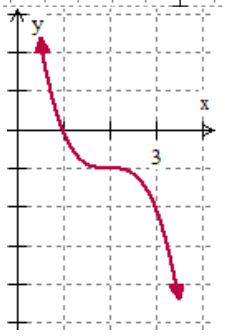
ANSWERS

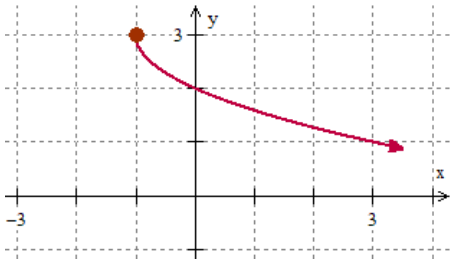
1.

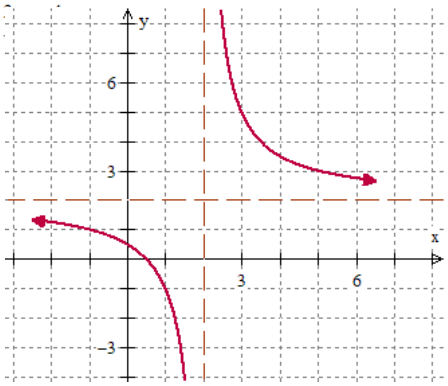




2.







3. $\approx 87^\circ \pm 12^\circ$

4. –
    a. 225°
    b. 330°
    c. 160°
    d. 170°
    e. 143°

5. –
    a. $\frac{7\pi}{6}$
    b. $\frac{20\pi}{9}$
    c. $\frac{2\pi}{3}$
    d. $\frac{\pi}{90}$
    e. $\frac{5\pi}{3}$

6. –
    a. -6
    b. 5
    c. -2
    d. $-2x-h-1$

7. –
    a. $\left(-\infty,\frac{7}{9}\right)$
    b. $(-\infty,-2)$
    c. $[-2,0]u[3/2,\infty)$
    d. $\left(\frac{-5}{2},\frac{3}{4}\right)$

8. –
    a. $(0,18),(3,0),(2,0)(-3,0)$
    b. $\left(\frac{1}{2},0\right),(-3,0)$, $(0,-3)$
    c. $\left(\frac{5}{2},0\right),\left(0,\frac{5}{3}\right)$

9. –
    a. D: $(-\infty,1)$
       R: $(0,\infty)$
    b. D: $(-\infty,3]$
       R: $[0,\infty)$
    c. D: $(-\infty,-3)u(-3,\infty)$
       R: $(-\infty,0)u(0,\infty)$
    d. D: $(-\infty,-2]u[2,\infty)$
       R: $[0,\infty)$
    e. D: $[-4,4]$
       R: $[0,4]$

10. –
    a. $y+4=\frac{-4}{3}(x-2)$
    b. $x=2$
    c. $y-4=\frac{6}{5}(x-2)$
    d. $y-1=-3(x+6)$
    e. $5x-2y=-26$

11. $\left(\frac{29}{13},\frac{-15}{26}\right)$