October 6, 2017

$(-1,-2)$ & $\perp$ $2x+5y+8=0$

$y=mx+b$

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

test: $\frac{5}{2}\cdot\left(-\frac{2}{5}\right)=-\frac{10}{10}=-1$ ✓

$5y=-2x-8$

$y=-\frac{2}{5}x-\frac{8}{5}$

① $y=mx+b$

② $Ax+By=C$

① $-2=\frac{5}{2}(-1)+b$

$-2=-\frac{5}{2}+b$

$-\frac{2}{1}+\frac{5}{2}=b$

$\frac{-4+5}{2}$

$\frac{1}{2}=b$

$y=\frac{5}{2}x+\frac{1}{2}$

$2y=5x+1$

$-5x+2y=1$

$5x-2y=-1$

$5x-2y+1=0$

Oct 6-11:02 AM

#33) x-int 1; y-int -3

$(1,0)$ & $(0,-3)$

$m=\frac{-3-0}{0-1}=\frac{-3}{-1}=\frac{3}{1}=3$

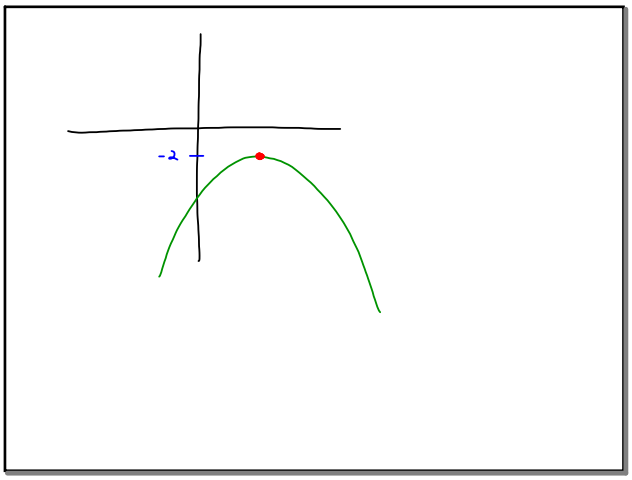
$0=3(1)+b$

$-3=b$

$y=3x-3$

$3x-y-3=0$

Oct 6-11:15 AM



Oct 6-11:25 AM

$f(x)=ax^2+bx+c$

- opens up if $a>0$ "+a"
- opens down if $a<0$ "-a"

Oct 6-11:26 AM

$(2,3)$ & $(1,4)$

$(x-h)^2+(y-k)^2=r^2$

① mid-point

$\left(\frac{x_1+x_2}{2},\frac{y_1+y_2}{2}\right)$

$\left(\frac{3}{2},\frac{7}{2}\right)$

h, k

② $d=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$=\sqrt{(1-2)^2+(4-3)^2}$

$=\sqrt{(-1)^2+(1)^2}$

$=\sqrt{1+1}$

$=\sqrt{2}$

$\left(x-\frac{3}{2}\right)^2+\left(y-\frac{7}{2}\right)^2=2$

Oct 6-11:31 AM

$(-3,4)$ & $\perp$ $5x-2y=7$

$-2y=-5x+7$

$y=\frac{5}{2}x-\frac{7}{2}$

$m=-\frac{2}{5}$

$y-4=-\frac{2}{5}(x+3)$

$y-4=-\frac{2}{5}x-\frac{6}{5}$

$y=-\frac{2}{5}x-\frac{6}{5}+\frac{4}{1}$

$=-\frac{2}{5}x\ \frac{-6+20}{5}$

$y=-\frac{2}{5}x+\frac{14}{5}$

Oct 6-11:53 AM

$(\overset{x}{-3}, \overset{y}{4})$ & $\parallel$ $5x - 2y = 7$

$-2y = -5x + 7$

$y = \frac{5}{2}x - \frac{7}{2}$

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

$y - 4 = \frac{5}{2}(x + 3)$

$y - 4 = \frac{5}{2}x + \frac{15}{2}$

$y = \frac{5}{2}x + \frac{15}{2} + \frac{4}{1}$

$\frac{15 + 8}{2}$

$\boxed{y = \frac{5}{2}x + \frac{23}{2}}$

Oct 6-12:00 PM

Domain: what are the "valid" xs?

$f(x) = 3x + 2$

D: $(-\infty, \infty)$

$g(x) = \frac{3x + 2}{x - 5}$, $x - 5 \neq 0$, $x \neq 5$

$(-\infty, 5) \cup (5, \infty)$

$h(x) = \sqrt{2x + 4}$, $2x + 4 \geq 0$

$2x \geq -4$

$x \geq -2$

D: $[-2, \infty)$

Oct 6-12:08 PM

P$(\overset{x_1}{5}, \overset{y_1}{4})$ & Q$(\overset{x_2}{3}, \overset{y_2}{-2})$

Slope $= \frac{y_2 - y_1}{x_2 - x_1} = \frac{(-2) - (4)}{(3) - (5)}$

$= \frac{-6}{-2} = 3$

Oct 6-12:13 PM

$f(x) = 3x^2 + 6x$

$y = 3x^2 + 6x$

x	y
0 & -2	0
0	0

$0 = 3x^2 + 6x$

$0 = 3x(x + 2)$

① $\frac{3x}{3} = \frac{0}{3}$, $\boxed{x = 0}$ ② $x + 2 = 0$, $\boxed{x = -2}$

Oct 6-12:17 PM

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

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

② $g(-1) = \frac{1 - (-1)}{1 + (-1)} = \frac{1 + 1}{0} =$ und

③ $g\left(\frac{1}{2}\right) = \frac{1 - \frac{1}{2}}{1 + \frac{1}{2}} = \frac{\frac{1}{1} - \frac{1}{2}}{\frac{1}{1} + \frac{1}{2}} = \frac{\frac{2 - 1}{2}}{\frac{2 + 1}{2}}$

$= \frac{1}{2} \div \frac{3}{2} = \frac{1}{2} \cdot \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$

④ $g(a) = \frac{1 - a}{1 + a}$

⑤ $g(a - 1) = \frac{1 - (a - 1)}{1 + (a - 1)}$

$= \frac{1 - a + 1}{1 + a - 1} = \frac{2 - a}{a} = \frac{2}{a} - 1$

⑥ $g(x^2 - 1) = \frac{1 - (x^2 - 1)}{1 + (x^2 - 1)}$

$= \frac{1 - x^2 + 1}{1 + x^2 - 1} = \frac{2 - x^2}{x^2}$

Oct 6-12:20 PM