TH-A2 Algebra 2 Week 8

$f(x) = 3x - 8$

$f(-2) = 3(-2) - 8$

$-6 - 8 = -14$

Determine whether each is a function. If a function, find domain and range.

(x, y)

(2, 3) (3, 2) (4, 2) (-3, 2)

function

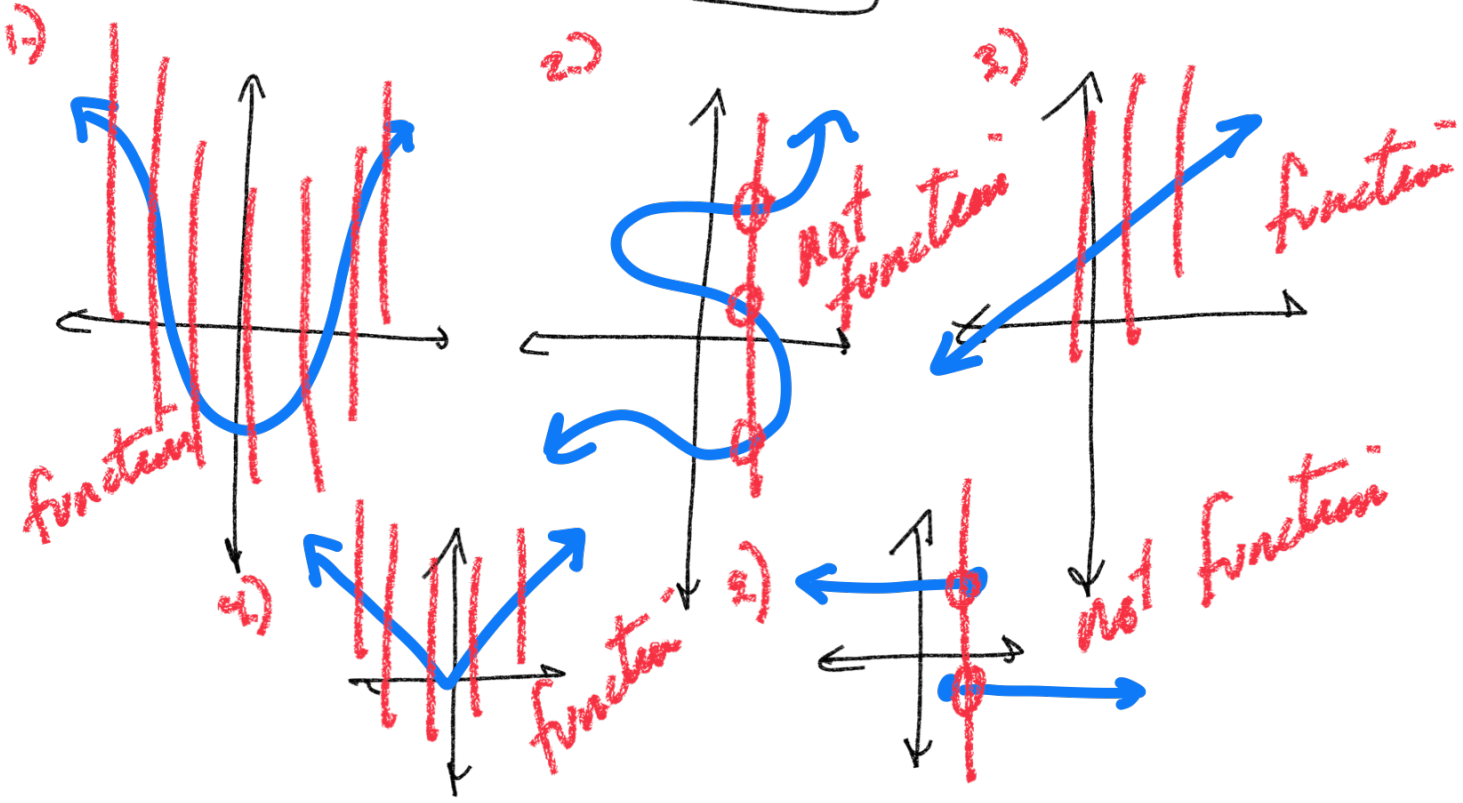
input → output

domain: {2, 3, 4, -3}

range: {3, 2}

(4, 5) (0, 8) (-4, 9) (0, -8)

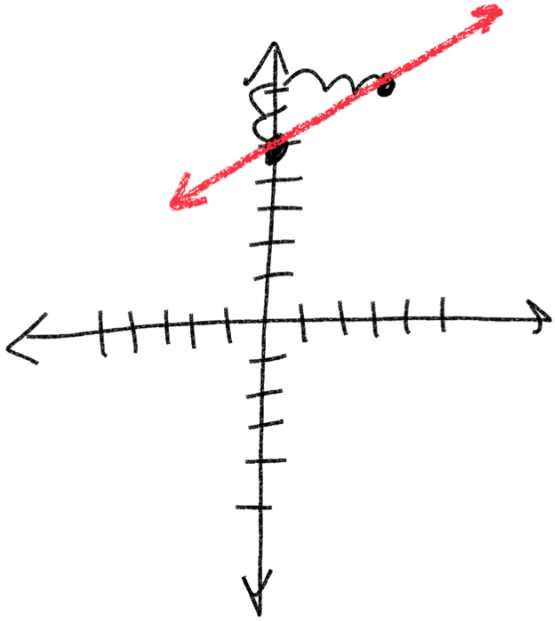
not a function



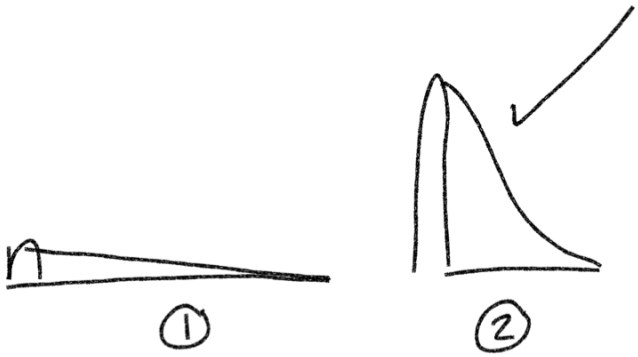
slope = $\frac{2}{3}$ y-int = 5

slope-intercept form

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

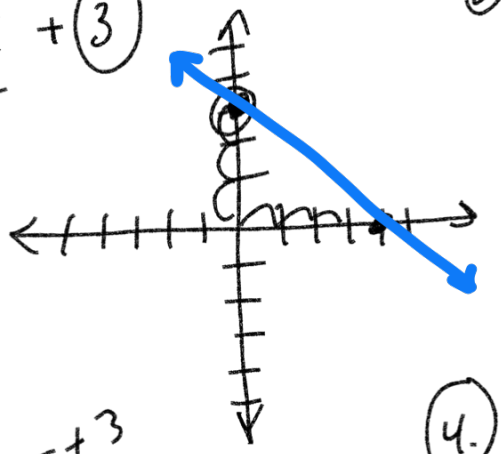


slope = $\frac{\text{rise}}{\text{run}}$

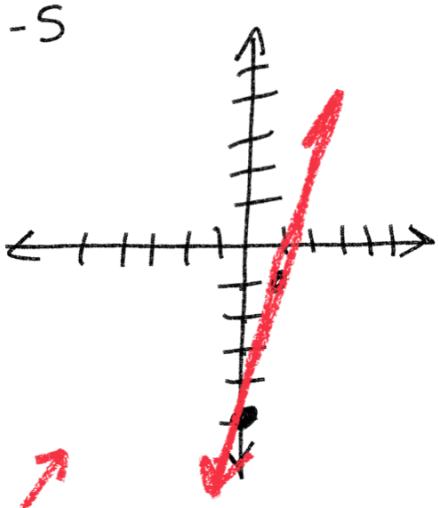


① $y = -\frac{3}{4}x + 3$ ← y-int

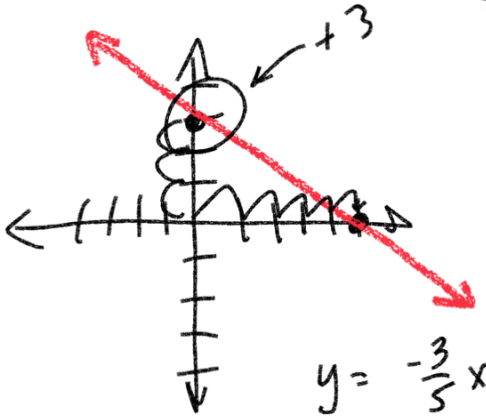
$-\frac{3}{4}$ down 3 / 4 right



② $y = 4x - 5$

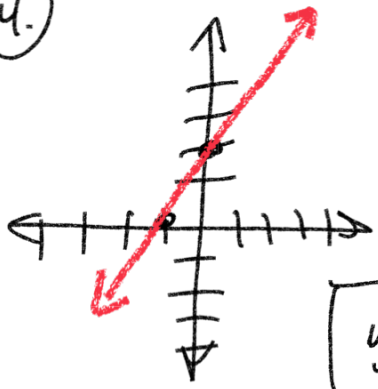


③



$y = -\frac{3}{5}x + 3$

④



$y = 2x + 2$

slope = $2 = m$

point = $(4, 3)$ (x, y)

{ point-slope form }

$y - y_1 = m(x - x_1)$

$y - 3 = 2(x - 4)$

$y - 3 = 2x - 8$

$+3 \quad +3$

$y = 2x - 5$

slope-intercept form

$y = mx + b$

$3 = (2)(4) + b$

$3 = 8 + b$

$-8 \quad -8$

$-5 = b$

$y = 2x - 5$

$2x + 3y = 12$ Standard form

$2x + 3y = 12$

$x = 0$

$3y = 12$

$\frac{3y}{3} = \frac{12}{3}$

$y = 4$

$x \quad y$

$(0, 4)$

y-intercept

y-int

$2x + 3y = 12$

$y = 0$

$(6, 0)$

$\frac{2x}{2} = \frac{12}{2}$

$x = 6$

x-intercept

x-int

$y = mx + b$

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

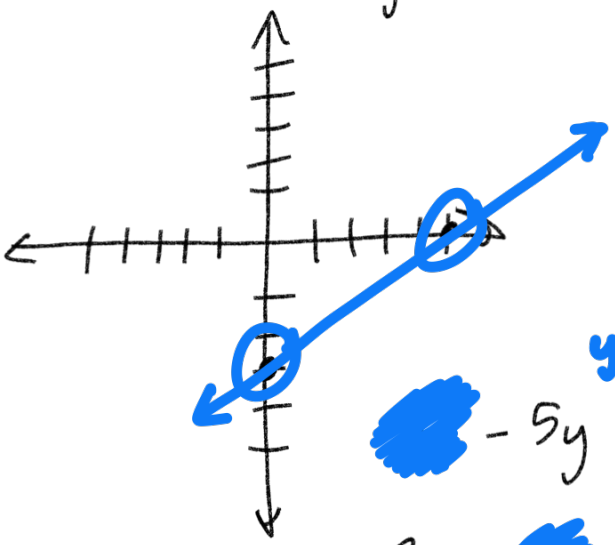
$2x + 3y = 12$

$-2x \quad -2x$

$\frac{3y}{3} = \frac{-2x + 12}{3} \quad \frac{}{3}$

$3x - 5y = 15$

$y = \frac{3}{5}x - 3$



$y = -3$

$-5y = 15$

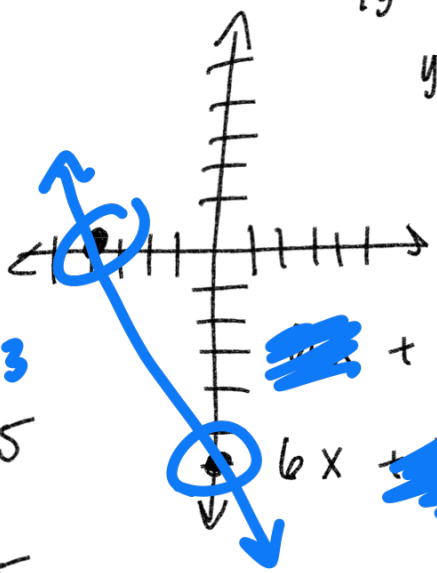
$3x = 15$

$x = 5$

$6x + 4y = -24$

$4y = -6x - 24$

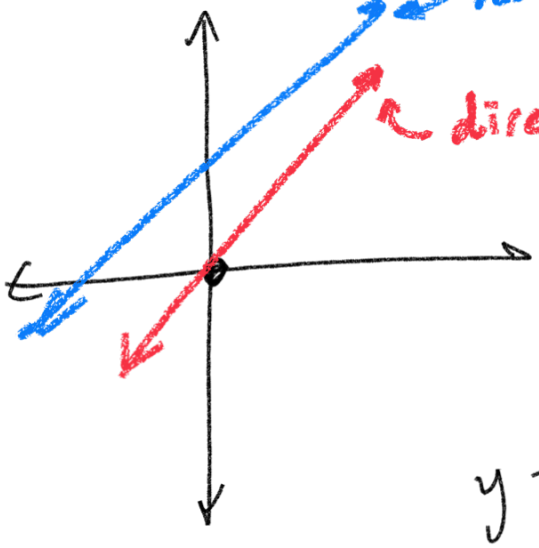
$y = \frac{-3}{2}x - 6$



$+ 4y = -24$

$6x + = -24$

2-3 Direct Variation linear equation



$y = kx$

Always goes through the origin!

$y = kx$ ← constant of variation

$\frac{y}{x} = \frac{kx}{x}$ $\quad k = \frac{y}{x}$

If $y = 5$ when $x = 2$

find y when $x = 7$

$y = kx$

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

$y = \frac{5}{2}(7)$

$y = \frac{35}{2}$

$y = kx$

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

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

1. $y = 8$ when $x = 4$

find y when $x = 6$

$y = kx$

$\frac{8}{4} = \frac{4k}{4}$

$k = 2$

$y = 2x$

$y = 2(6) = 12$

2. If $y = 9$ when $x = 3$

find x when $y = 7$

$y = kx$

$\frac{9}{3} = \frac{3k}{3}$

$k = 3$

$y = 3x$

$\frac{7}{3} = \frac{3x}{3}$

$x = \frac{7}{3}$

x	y	$\frac{y}{x}$
1	1	$\frac{1}{1} = 1$
2	4	$\frac{4}{2} = 2$
3	9	$\frac{9}{3} = 3$

$y = kx$

$\frac{y}{x} \quad \frac{kx}{x}$

same

$k = \frac{y}{x}$

Direct variation, k is constant always the same!

Not direct variation

(x, y)

(7, 3)

(0, 0)

$k = \frac{y}{x}$

$y = kx$

$k = \frac{3}{7}$

$y = \frac{3}{7}x$

Quiz 7 due Oct 22nd

HW
- 2-3 events supplemental
- Online HW 8 (Sat)
- Quiz 8 (Sat) due Oct 29th