

1.1 Graphs of equations

$$y = mx + b$$

\swarrow slope
 \swarrow y-int

1) lines

2) circles

$$2x + 3y = 12$$

standard form

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 MATH 1314 + MATH 0270
 College Algebra with Foundations
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when does the line cross the x-axis

when does the line cross the y-axis

x	y
0	4
6	0

$$2(0) + 3y = 12 \quad (y=4)$$

$$(y=4)$$

x	y
0	4
6	0

$$2x + 3(0) = 12 \quad (x=6)$$

x-intercept

Is (2,3) on this line?

$$x=2 \quad y=3$$

$$2x + 3y = 12$$

$$2(2) + 3(3) = 12$$

$$4 + 9 = 12$$

$$13 \neq 12$$

no its not on the line

(6,0)

Is (3,2) on the line?

$$2(3) + 3(2) = 12$$

$$6 + 6 = 12$$

$$12 = 12 \quad \checkmark$$

(3,2) is on the line

To find the x-intercept
 let $y=0$:

$$2x + 3(0) = 12$$

$$2x = 12$$

$$x = 6 \rightarrow (6,0)$$

x-intercept

To find the y-intercept
 let $x=0$

$$2(0) + 3y = 12$$

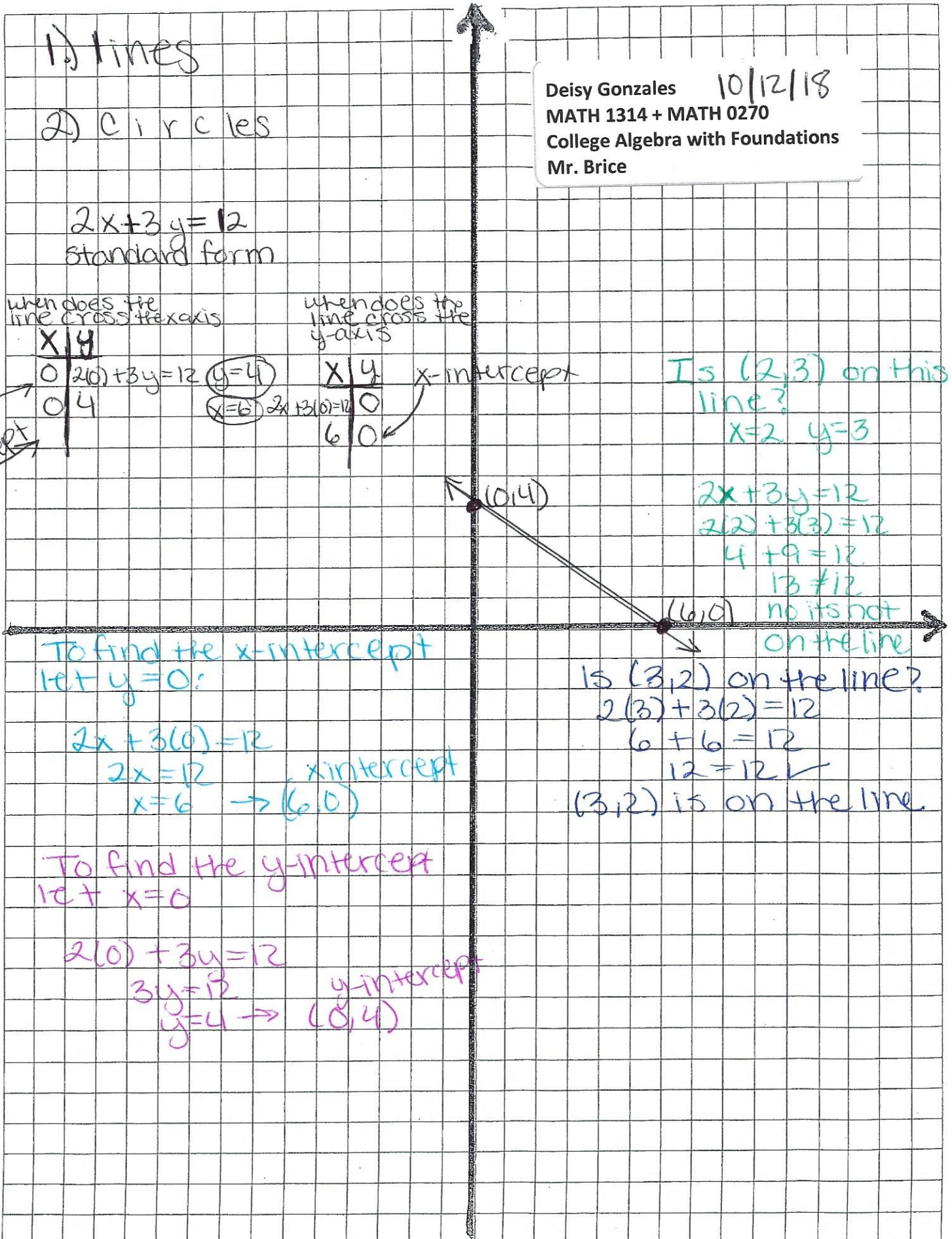
$$3y = 12$$

$$y = 4 \rightarrow (0,4)$$

y-intercept

Let $x=0$

y-intercept



Web Assign Questions

② $y = x^2 - 3x + 2$

(a) $(2, 0)$ $x=2$ $y=0$ (b) $(-2, -12)$ $x=-2$ $y=-12$

$$0 = (2)^2 - 3(2) + 2$$

$$0 = 4 - 6 + 2$$

$$0 = -2 + 2$$

$$0 = 0 \checkmark \text{ (yes)}$$

$$-12 = (-2)^2 - 3(-2) + 2$$

$$-12 = 4 + 6 + 2$$

$$-12 \neq 12 \text{ (no)}$$

③ $y = 4 - |x - 2|$

(a) $(1, 5)$ $x=1$ $y=5$

$$(5) = 4 - |1 - 2|$$

$$5 = 4 - 1 - 1$$

$$5 = 4 - 1$$

$$5 \neq 3 \text{ (no)}$$

(b) $(6, 0)$ $x=6$ $y=0$

$$0 = 4 - |6 - 2|$$

$$0 = 4 - |6 - 2|$$

$$0 = 4 - |4|$$

$$0 = 4 - 4$$

$$0 = 0 \checkmark \text{ (yes)}$$

④ $y = \frac{1}{3}x^3 - 3x^2$

(a) $(2, -\frac{28}{3})$

$$-\frac{28}{3} = \frac{1}{3}(2)^3 - 3(2)^2$$

$$-\frac{28}{3} = \frac{1}{3}(8) - 3(4)$$

$$-\frac{28}{3} = \frac{8}{3} - 12$$

$$-\frac{28}{3} = \frac{8}{3} - \frac{36}{3}$$

$$-\frac{28}{3} = -\frac{28}{3} \checkmark \text{ (yes)}$$

(b) $(-3, 9)$

$$9 = \frac{1}{3}(-3)^3 - 3(-3)^2$$

$$9 = \frac{1}{3}(-27) - 3(9)$$

$$9 = \frac{-27}{3} - \frac{27}{1}$$

$$9 = \frac{-27}{3} - \frac{81}{3}$$

$$9 = \frac{-108}{3}$$

$$9 \neq 36 \text{ (no)}$$