HOMEWORK 1: SOLUTIONS - MATH 111
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Problem 1 *Sketch the graph of* $y = -2x + 3$.

Solution:

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Problem 2 *Find the* x*- and* y*-intercepts of the graph in 1.*

Solution:
For the x-intercept, set $y = 0$. Then $-2x + 3 = 0$, whence $x = \frac{3}{2}$.
For the y-intercept, set $x = 0$. Then $y = 3$. ■

Problem 3 *Sketch the graph of* $y = x - 2$.

Solution:

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Problem 4 *Find the* x*- and* y*-intercepts of the graph in 3.*

Solution:
For the x-intercept, set $y = 0$. Then $x - 2 = 0$, whence $x = 2$.
For the y-intercept, set $x = 0$. Then $y = -2$. ■

Problem 5 *Find the slope of the line passing through the origin and the point* $(-3, 1)$.

Solution:

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - 0}{-3 - 0} = -\frac{1}{3}.$$

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Problem 6 *Find the equation of the line having slope* $m = 3$ *and* y*-intercept* $b = -2$.

Solution:

Use the slope intercept form $y = mx + b$. Since the slope $m = 3$ and the y-intercept is $b = -2$, we have $y = 3x - 2$. Thus (c) is the correct answer. ■

Problem 7 *Find the equation of the line that is parallel to* $y = -x + 5$ *and goes through the point* $(2, 5)$.

Solution:

The slopes of the two lines will have to be the same since they are parallel. Thus the slope of the line we are looking for is $m = -1$. Now since we also have the point $(a, b) = (2, 5)$ on that line we may use the point-slope form $y - b = m(x - a)$. We get $y - 5 = -1(x - 2)$ or $y - 5 = -x + 2$, i.e., $y = -x + 7$. ■

Problem 8 *Find the equation of the line that has slope* $m = -2$ *and goes through the point* $(-2, 3)$.

Solution:

Working in the same way as in 7, with $m = -2$ and $(a, b) = (-2, 3)$, we get $y - 3 = -2(x + 2)$ or $y = -2x - 1$. ■