

MATH 118: Quiz 3

Name: _____

Directions:

- * Show your thought process (commonly called "showing your work") when solving each problem for full credit.
- * If you do not know how to solve a problem, try your best and/or explain in English what you would do.
- * Good luck!

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1. Find the equation of the line that passes through $(-1, 2)$ and $(2, 4)$. Isolate y for full credit.

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 2}{2 - (-1)} = \frac{2}{3}$$

using point-slope form:

$$y - 2 = \frac{2}{3}(x - (-1))$$

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

$$\boxed{y = \frac{2}{3}x + \frac{8}{3}}$$

2. Find the x - and y -intercepts for the equation $y = 2x^2 - 3x - 2$.

x -intercepts: Solve $0 = 2x^2 - 3x - 2$

quadratic $\begin{matrix} 2 & 1 \\ 1 & -2 \end{matrix}$

$$0 = (2x + 1)(x - 2)$$

$$2x + 1 = 0$$

$$\boxed{x = -\frac{1}{2}}$$

$$x - 2 = 0$$

$$\boxed{x = 2}$$

y -intercepts: $y = 2 \cdot 0^2 - 3 \cdot 0 - 2$

$$\boxed{y = -2}$$

3. Suppose $f(x) = 5 - 2x$. Evaluate and completely simplify

$$\begin{aligned} & \frac{f(x+h) - f(x)}{h} \\ &= \frac{\overbrace{5 - 2(x+h)}^{f(x+h)} - \overbrace{(5 - 2x)}^{f(x)}}{h} \\ &= \frac{5 - 2x - 2h - 5 + 2x}{h} \\ &= \frac{-2h}{h} \\ &= \boxed{-2} \end{aligned}$$