

[1] The weights w of two-thirds of the members of a population satisfy the inequality **ANSWER:** $[137, 177]$

$\left| \frac{w-157}{20} \right| \leq 1$, where w is measured in pounds. Determine the interval(s) on the real number line in which these weights lie.

$$\underline{-1 \leq \frac{w-157}{20} \leq 1}$$

$$-20 \leq w-157 \leq 20$$

$$\underline{137 \leq w \leq 177} \quad \left(\frac{1}{2}\right)$$

[2] Determine algebraically if the graph of $x^2y = 4$ is symmetric over the y -axis.

ANSWER: YES

$$\underline{(-x)^2y = 4}$$

$$\underline{x^2y = 4} \quad \left(\frac{1}{2}\right)$$

[3] Find the domain of the function $h(x) = \sqrt{5-7x}$.

ANSWER: $\left\{x \leq \frac{5}{7}\right\}$

$$\underline{5-7x \geq 0}$$

$$-7x \geq -5$$

$$x \leq \frac{5}{7}$$

$$\left[\begin{array}{c} \{x \leq \frac{5}{7}\} \\ \text{OR} \\ (-\infty, \frac{5}{7}] \end{array} \right]$$

[4] Find the x -intercepts of the function $g(x) = 9x^2 - 3x - 1$.

ANSWER: $\frac{1 \pm \sqrt{5}}{6}$ $\left(\frac{1}{2}\right)$

$$9x^2 - 3x - 1 = 0$$

$$x = \frac{3 \pm \sqrt{9 + 36}}{18}$$

$$= \frac{3 \pm \sqrt{45}}{18}$$

$$= \frac{3 \pm 3\sqrt{5}}{18} = \frac{1 \pm \sqrt{5}}{6}$$

ADDITIONAL QUESTIONS ON THE OTHER SIDE ➡

- [5] The cost C in dollars of producing n computer laptop bags is given by $C = 1.25n + 15,750$.

Explain what the C -intercept and slope measure.

ANSWER: THE C-INTERCEPT IS THE FIXED COST IF NO BAGS ARE PRODUCED. THE SLOPE IS THE COST OF PRODUCING EACH BAG.

- [6] Evaluate $p(x) = \begin{cases} 2x+7, & x \leq -1 \\ 3-2x^2, & -1 < x \leq 3 \\ 1-x^2, & x > 3 \end{cases}$ at each specified value of the independent variable below.

[a] $p(3) = 3 - 2(3)^2$

ANSWER: -15

[b] $p(-2) = 2(-2) + 7$

ANSWER: 3

- [7] If $f(x) = 2x^2 - x$, find the difference quotient $\frac{f(x+h) - f(x)}{h}$.

ANSWER: $4x + 2h - 1$

$\frac{1}{2}$ $\frac{2(x+h)^2 - (x+h) - (2x^2 - x)}{h}$

$= \frac{2(x^2 + 2hx + h^2) - x - h - 2x^2 + x}{h}$

$= \frac{2x^2 + 4hx + 2h^2 - x - h - 2x^2 + x}{h} = 4x + 2h - 1$

- [8] Find the slope-point form of the equation of the line through the point $(-11, 7)$ perpendicular to the line $4x - 6y = -5$.

ANSWER: $y - 7 = -\frac{3}{2}(x + 11)$

$-6y = -4x - 5$

$\frac{1}{2}$ $y = \frac{2}{3}x + \frac{5}{6}$

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

- [9] Solve $\frac{1}{x-4} - \frac{2}{x+2} = \frac{6}{x^2 - 2x - 8}$. LCD = $(x-4)(x+2)$

ANSWER: NO SOLUTION

$x+2 - 2(x-4) = 6$

$x+2 - 2x + 8 = 6$

$-x = -4$

$\frac{1}{2}$ $x = 4 \rightarrow$ MAKES 1ST DENOMINATOR = 0