

$$f(x) < 0 \text{ where } f(x) = x^2(x-3)$$

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$$x^2(x-3) < 0$$

$$x < 0 \text{ or}$$

$$0 < x < 3$$

$$x \in (-\infty, 0) \cup (0, 3)$$



$$f(x) \geq 0$$

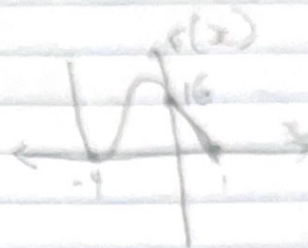
$$f(x) = (x+4)^2(1-x)$$

$$(x+4)^2(1-x) \geq 0$$

$$(1-x) \geq 0$$

$$x \leq 1$$

$$x \in (-\infty, 1]$$



$$R(x) > 0, R(x) = \frac{(x+1)}{x(x+4)}$$

$$0 < \frac{(x+1)}{x(x+4)}$$

$$(-\infty, -4) \cup (-4, 0) \cup (0, \infty)$$

$$-4 < x < -1 \text{ or } x > 0$$

$$\frac{-(x+1)}{x(x+4)}$$



$$R(x) < 0, R(x) = \frac{x}{(x-1)(x-2)}$$

$$\frac{x}{(x-1)(x-2)} < 0$$

$$\text{Factor } x=0, x=1, x=2$$

$$\frac{x}{(x-1)(x-2)}$$

$$(-\infty, 1) \cup (1, 2) \cup (2, \infty)$$

$$x < 0, 0 < x < 1,$$

$$1 < x < 2 \text{ or } x > 2$$

$$\frac{x-3}{x+1} > 0$$

$$x+1$$

$$x=3, x=-1$$

$$\begin{array}{c} + & - & + \\ -1 & 3 & \end{array}$$

$$x \in (-\infty, -1) \cup (3, \infty)$$

$$x \in (-\infty, -1) \cup (3, \infty)$$

$$\frac{(x-3)(x+1)}{x+1} \leq 0$$

$$1$$

$$x=1, x=3, x=-1$$

$$\begin{array}{c} - & + & - & + \\ 2 & 1 & 3 & \end{array}$$

$$x \in (-\infty, -1] \cup (1, 3]$$

$$x < -2, -2 < x < -1, x > -1$$

$$x < -2$$

$$-2 < x < -1$$

$$x > -1$$

$$-2 < x \leq -1$$

$$\begin{array}{c} \leftarrow & \bullet & \bullet & \bullet & \rightarrow \infty \\ -\infty & -2 & -1 & 0 \end{array}$$

$$\frac{3x-5}{x+2} \leq 2$$

$$x+2$$

$$x+2 \neq 0$$

$$x \neq -2$$

$$\frac{3x-5}{x+2} \leq 2$$

$$x+2$$

$$\frac{3x-5}{x+2} \leq \frac{2(x+2)}{x+2}$$

$$3x-5 \leq 2x+4$$

$$3x-5+5 \leq 2x+4+5$$

$$3x-2x \leq 2x+9-2x$$

$$x \leq 9$$

$$x \in (-\infty, -2) \cup (-2, 9)$$