

- 3.6 #15-39odd Solving polynomial inequalities
#47, 53-61odd Solving rational inequalities
- 3.7: #23-37 odd Variation
- 4.1 #17-23 odd prove f is one-to-one; prove g is not one-to-one
#59-63 odd determine if f is on.to.one and if so, determine its inverse
#77-81 odd sketch the inverse function by reflecting over $y=x$
#83-87 odd use composition to show that the functions are inverses
- 4.2 #5-10all match an exponential function to its graph
#11-41odd sketch graphs of exponential functions using transformations
#43a,b,c,45,47 compound interest word problems
- 4.3 #1-8all sketch graphs of logarithmic functions
#9-33odd evaluate log expressions without a calculator
#35-53 odd convert between logarithmic and exponential expressions
#69-77 odd apply change of base formula & calculator to approximate log expressions
#83-90 all graph logarithmic functions using transformations
- 4.4 # 31,33, 49-55 odd; 65-75 odd; 107 applying log rules
- 4.5 # 1-25 odd; solving exponential equations; #27-47 odd solving logarithmic equations
- 4.6 #5,7,9,15,17 application problems

$$f(x) = x^3 + \frac{1}{2}$$

To show f is 1-1 :

$$a^3 + \frac{1}{2} = b^3 + \frac{1}{2}$$

$$\sqrt[3]{a^3} = \sqrt[3]{b^3}$$

$$a = b$$

$$f(x) = 3x^2 + 1$$

To show f is not 1-1:

$$-1 \neq 1$$

$$f(-1) = 3(-1)^2 + 1 = 4$$

$$f(1) = 3(1)^2 + 1 = 4$$

since $f(-1) = f(1)$
 f is not
 1-1

$$\log_c \sqrt[3]{\frac{y^3 z^2}{x^4}} = \log_c \left(\frac{y^3 z^2}{x^4} \right)^{1/3}$$

$$= \log_c \left(\frac{y z^{2/3}}{x^{4/3}} \right)$$

$$= \log_c y + \log_c z^{2/3} - \log_c x^{4/3}$$

$$= \log_c y + \frac{2}{3} \log_c z - \frac{4}{3} \log_c x$$

$$\begin{aligned}
 & 3^{2 \log_3 4} \\
 &= 3^{\log_3 4^2} \\
 &= 4^2 = 16
 \end{aligned}$$

$$a^{\log_a x} = x$$

$$\log_a a^x = x$$

$$\begin{aligned}
 & -3 \log_2 5 + 4 \log_2 3 \\
 & \log_2 (5^{-3} \cdot 3^4) \\
 & 4 \log_2 3 - 3 \log_2 5 \\
 & \log_2 \frac{3^4}{5^3}
 \end{aligned}$$

$$y = k \frac{x^2 z^2}{w}$$

$$50 = k \cdot \frac{2^2 \cdot 5^2}{10}$$

$$50 = k \cdot 10$$

$$5 = k$$

$$y = 50, x = 2, \\ z = 5, \\ w = 10$$

$$y = 5 \frac{x^2 z^2}{w}$$

$$a \cdot \frac{b}{c} = \frac{ab}{c}$$

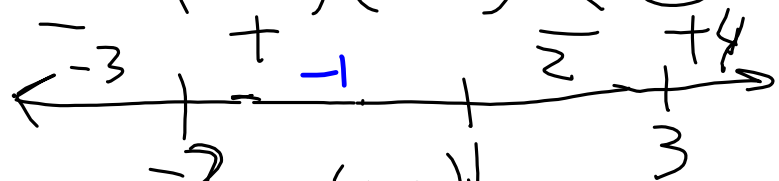
$$x^3 - 2x^2 < 5x - 6$$

$$x^3 - 2x^2 - 5x + 6 < 0$$

$$\begin{array}{r} \downarrow \\ 1 \quad -2 \quad -5 \quad 6 \\ \quad \quad 1 \quad -1 \quad -6 \end{array}$$

$$x^2 - x - 6 \quad | \quad 0$$

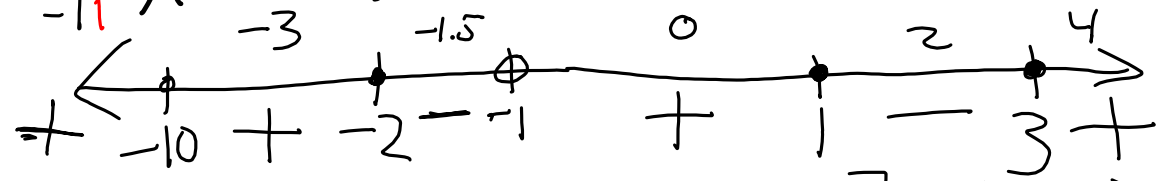
$$(x-1)(x-3)(x+2) < 0$$



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

$$(x-1)^3 (x-3)(x+2) \geq 0$$

$$(x+1)(x+10)^2$$



$$(-\infty, -10) \cup (-10, -2] \cup (-1, 1] \cup [3, \infty)$$