

UNIT 7

List the following for the given rational

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

Holes: $x = 3$

VA: $x = 1$

x-int: $(-2, 0)$

y-int: $(0, -2)$

HEB: $y = 1$

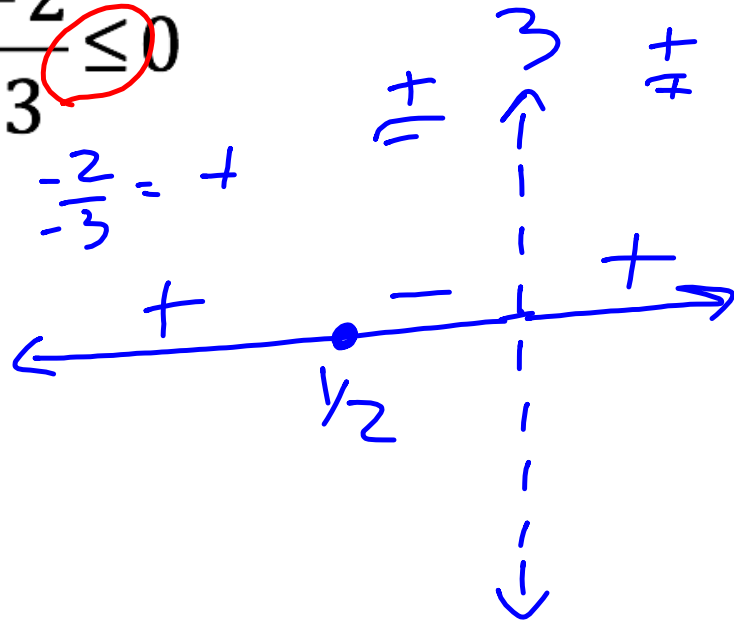
$$0 = x + 2$$

$$\frac{0+2}{0-1} = -2$$

Rational Inequality

Find where $\frac{4x-2}{x-3} \leq 0$

$[\frac{1}{2}, 3)$



UNIT 8

The first term of a sequence is 5 and the common difference is 3.

Write the explicit equation for the pattern.

$$f(n) = 2 + 3n$$

Find the 8th term of the sequence

$$f(8) = 2 + 3(8) = 26$$

Find the sum of the first 8 terms

$$5 + 8 + 11 + 14 + 17 + 20 + 23 + 26$$

$$124$$

The number of bacteria after a given amount of time is modeled by the equation $B = 42e^{.401t}$

What is the initial amount of bacteria present?

42

How much bacteria is there after 11 hours?

$$42e^{.401 \cdot 11} = 3458.77$$

Write a summation notation.

Jerry does 3 crunches the first day, 6 the second day, and 12 the third day. Write using summation notation how many crunches Jerry will do from day 1 to day 20.

$$\sum_{n=1}^{20} 3/2 (2)^n$$

If Johnny deposits \$300 compounding monthly at a 3.5% interest rate, how much money will he have after 5 years?

$$300 \left(1 + \frac{.035}{12} \right)^{12 \cdot 5} = \$357.28$$

Jillian deposits \$5000 into an account compounding continuously at a 4.3% interest rate. How much money will she have after 7 years?

$$5000e^{.043 \cdot 7} =$$

$$\$ 6756.05$$

UNIT 9

How long will it take for a \$4500 investment to reach \$6000 compounding continuously at a 4.9% interest rate?

$$\frac{6000}{4500} = \frac{4500}{4500} e^{.049 \cdot t}$$

$$\ln 1.333 = \ln e^{.049 t}$$
$$.287 = .049 t$$

$$\sim 5.866 \text{ years}$$

Write in log form

$$2^x = 6$$

$$\log_2 6 = x$$

$$e^7 = a$$

$$\ln a = 7$$

$$10^c = w$$

$$\log w = c$$

Write in exponent form

$$\ln 6 = a$$

$$e^a = 6$$

$$\log_4 64 = 3$$

$$4^3 = 64$$

$$\log 100 = 2$$

$$10^2 = 100$$

Expand using log properties. Write all coefficient as exponents.

$$\ln \frac{a \sqrt[3]{b}}{c^5}$$

$$(\ln a + \frac{1}{3} \ln b) - 5 \ln c$$

Write as a single logarithm

$$(3\log_4 x + \log_4 y) - \frac{1}{3}\log_4 z$$

$$\log_4 \frac{x^3 y}{\sqrt[3]{z}}$$

Solve.

$$\cancel{5}^{\wedge} \log_5 (x-7) = \log_5 2 \cancel{5}^{\wedge}$$

$$x-7=2$$

$$x=9$$

