

Chapter 7 Review Sheet

- 1) Factor, simplify, multiply, divide
- a) Factor if possible
 - b) Grab Domain (if possible) what makes denominator go to zero. (x?)
 - c) To simplify/multiply, you go cross-out crazy
 - d) To divide flip 2nd fraction and go cross out crazy
- * Remember * domain comes from $\frac{a}{b} \frac{c}{d}$

- 2) Add, Subtract, solve
- a) Factor denominator if possible.
 - b) Find common denominator.

- ← add/sub
- c) multiply top/bottom by missing factor
 - d) Denominator stays the same
 - e) Add/subtract numerator

- solving
- c) Drop denominator
 - d) multiply top by missing factor
 - e) set numerator =
 - f) solve for x.
 - * check restrictions

$$f(x) + h(x) = \begin{matrix} f(x) & h(x) \\ (x+3) + (3x+7) \\ x+3+3x+7 = 4x+10 \end{matrix}$$

$$f(x) \cdot h(x) = (x+3) \cdot (3x+7)$$

$$(x+3) + (3x+7) = -2x-4$$

$$f(x) \cdot h(x) = (x+3) \cdot (3x+7) = \text{foil}$$

$$f(h(x)) = \text{plug } h(x) \text{ into } f(x) = (3x+7)+3$$

$$3x+7+3 = 3x+10$$

$$f(4) = \text{plug } 4 \text{ in for } x$$

$$(4+3) \rightarrow (4+3) = 7$$

$$f(x) = f(x) = \text{set equal } f(x) = f(x)$$

8.4 Solving Radicals

- 1.) Isolate the radical
- 2.) square or cube both sides
- 3.) solve for x
- 4.) check

$$1.) \frac{1}{4} \sqrt[3]{x-3} + 2 = -7$$

$$\therefore \frac{1}{4} \sqrt[3]{x-3} = -9$$

$$\sqrt[3]{x-3} = 36$$

$$x-3 = \text{big number}$$

$$x = \text{big} + 3$$

8.2 Inverses

- 1.) switch x & y $(x,y) \rightarrow (y,x)$
- 2.) Graph? symmetrical about $y=x$
- 3.) Switch x & y in equation and solve for y
- 4.) $f(g(x)) = g(f(x)) = x$

8.3 Simplify Radicals

- 1.) look for groups (depends on index⁽ⁿ⁾)
- 2.) Don't make Mr. Havel crazier than he already is, set up your answer first "3"

Unit 10 Review Sheet

10.1

$$x^5 \cdot x^2 = x^{5+2} = x^7$$

$$(x^5)^2 = x^{5 \cdot 2} = x^{10} = x^7$$

$$\frac{x^5}{x^2} = x^{5-2} = x^3$$

$$(x^2 y^3 z^4)^0 = 1$$

$$x^{-5} = \frac{1}{x^5}$$

$$(3x^3)^3 = 3^3 x^9 = 27x^9$$

10.2 - 10.3

1. List a, b, h, k

2. HA ($y=k$)

3. $\uparrow \downarrow a, \leftarrow \rightarrow h$

4. Back HA, $\rightarrow 1, \uparrow \downarrow A, B$

Other

D: \mathbb{R}

R: $y > k$ (a is \uparrow)

$y < k$ (a is \downarrow)

Trans:

look at a, h, k

EB: as $x \rightarrow \infty$ $y \rightarrow \infty$ or HA
as $x \rightarrow -\infty$ $y \rightarrow \infty$ or HA

Growth: $b > 1$
Decay: $0 < b < 1$ (be careful with negative exp)

10.4 & 10.6

10.4: change base & simplify (10.1)

$$-x^{\frac{3}{5}} = -\sqrt[5]{x^3}$$

10.6:

- 1) change base & solve
- 2) drop bases & set exp =
- 3) solve for x

10.5

Growth: $A = A_0(1+r)^t$

Decay: $A = A_0(1-r)^t$

Continuous: $A = Pe^{rt}$

Compound: $A = P\left(1 + \frac{r}{n}\right)^{nt}$

r in decimal

$$\frac{\%}{100}$$

Unit 11 review sheet

11.1

circle of life
 $y = \log_b x \Rightarrow b^y = x$

$\ln = \log_e$
 $\log = \log_{10}$

→ Evaluate w/out Calc.

$\log_4 64$ * neg exp when there is 1 fraction

1. make bases same

~~$\log_4 4^3$~~

2. cancel

3

To go from big → small fraction exponent

11.2

Graphing:

1. a, b, h, k

2. VA (x=h)

3. TVK, →

4. Back to VA, NA, → b

D: x > h

R: R

11.3 Properties of Logs

Expand
Product: $\log_5 x \rightarrow \log_5 + \log x$

Compress
 $\log_5 + \log x = \log_5 x$

Quotient: $\log \frac{5}{x} = \log 5 - \log x$

Power: $\log 5^x = x \log 5$

Change of Base:

$\log_b m = \frac{\log m}{\log b}$ = Plug in calc
↑ Exact ↑ Approx

11.4 Solving Logarithmic Equations

1. 1 log on each side of =

2. → Drop logs and solve

Ex: $\log_5(4x-7) = \log_5(x+5)$

$4x-7 = x+5$

2. 1 log = constant

→ circle of life

$\log_4(5x-1) = 3 \rightarrow 4^3 = 5x-1$

3. Multiple logs = constant

→ condense

→ step 1 or step 2

$\log_3(x-1) + \log_3 x = \log_3 20$

$\log_3(x(x-1)) = \log_3 20$

$x^2 - x = 20$

$\log_4(x+12) + \log_4 x = 3$

$\log_4(x(x+12)) = 3$

$4^3 = x^2 + 12x$