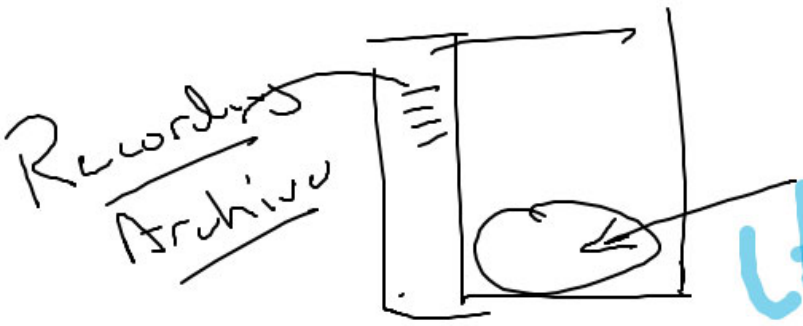
To Do — documents in CANVAS — "basic math"



(~~Fix~~ Verse) NO USE this

Assignments (2) → BASE R ←

Installing R is a two step process!

Step #1 : Download & install R

Step #2 : Download & install R Studio

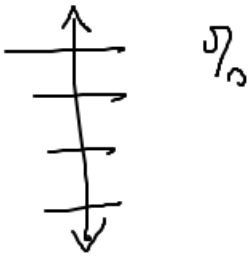
3 hr credit

3 X 50 minutes per week 150

5 X 90 mins 450 minutes ← 3 X

"Programming"

Syllabus



%

Factorial

factorial (of 3)

$3! = (3)(2)(1) = 6$

$5! = 5(4)3(2)(1) = 120$

$6! = 6(5)4(3)2(1) = 720$

$1! = 1$

$0! = 1$

Factorial: n — a positive integer

* $n! = n(n-1)(n-2)(n-3)\ldots(3)(2)(1)$

~~$-6!$~~ cannot compute — not positive

~~$3.1!$~~ cannot compute — not integer

by definition: $0! = 1$

$4! = 4(3)2(1) = 24$

$2! = 2(1) = 2$

$$\frac{6!}{4!} = \frac{6(5)4(3)2(1)}{4(3)(2)(1)} = \frac{720}{24} = 30$$

$$\frac{6!}{4!} = \frac{6(5)\overbrace{(4)(3)(2)(1)}^{4!}}{4!} = \frac{6(5)4!}{4!} = 30$$

· Fractions

$$\frac{1}{3}\left(\frac{2}{7}\right) = \frac{2}{21} = \frac{1(2)}{3(7)}$$

$$\frac{\left(\frac{1}{3}\right)}{\left(\frac{2}{7}\right)} = \left(\frac{1}{3}\right)\left(\frac{7}{2}\right) = \frac{7}{6}$$

$$\frac{3}{4} + \frac{1}{3} = \frac{3(3)}{12} + \frac{4}{12} = \frac{9}{12} + \frac{4}{12}$$

$$4(3) = 12$$

$$= \frac{13}{12}$$

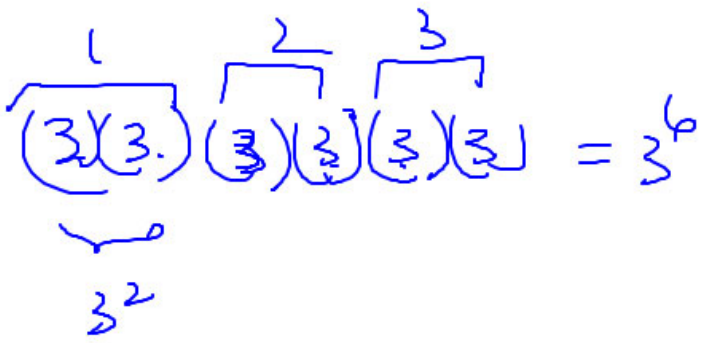
$$\frac{3}{4}\left(\frac{3}{3}\right) + \frac{1}{3}\left(\frac{4}{4}\right) = \frac{9}{12} + \frac{4}{12}$$

$\frac{3}{3} = 1$

$\frac{4}{4} = 1$

Exponents — rules

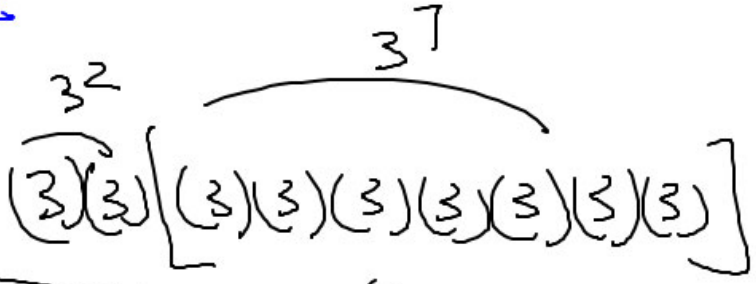
$$(3^2)^3 = 3^6$$



$$\boxed{(x^a)^b = x^{a \cdot b}}$$

$$3^2 3^7 = 3^9$$

same



$$\boxed{x^a x^b = x^{a+b}}$$

$6^2 4^3 \neq 6^5 4$

$$\frac{3^3}{3^4} = 3^{3-4} = 3^{-1} = \frac{1}{3}$$

$$x^a x^b$$

$$3^3 3^{-4}$$

$$\frac{3(3)(3)}{3(3)(3)(3)} \frac{1}{} = \frac{1}{3}$$

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

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

$$\frac{3^3}{3^4} = \frac{1}{3^4 3^{-3}} = \frac{1}{3^{4+(-3)}} = \frac{1}{3^{4-3}} = \frac{1}{3^1}$$

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

$$3^{-2} = \frac{1}{3^2} = \frac{1}{9}$$

$$2^5 = \frac{1}{2^{-5}}$$

Change sign of exponent when move "up or down"