JTB320 **Midterm 1 Review**

suggested for reference card
- bases (# lines, +/x tables)
- dif. historical # systems (Eg., Bab, Mayan, Roman)

Quiz 6

4)(b) $(4^8 \cdot 8^4)32^2$

$= (2^2)^8 (2^3)^4 (2^5)^2$

$= 2^{16} 2^{12} 2^{10} = 2^{38}$

3) true

$39(41) = 40(40) - 1$
$49(51) = 50(50) - 1$
$59(61) = 60(60) - 1$?
$69(71) = 70(70) - 1$?

$39(41)$
$= (40-1)(40+1)$
$= 40(40) + 40(1) - 40(1) - 1$
$= 40(40) - 1$

$(n-1)(n+1) = n^2 - 1$

Discussion of Zero

① Addition: 0 is the additive identity
$a + 0 = 0 + a = a$

② Subtraction: $a - 0 = a$ but $0 - a \neq a$

③ Multiplication:
Zero-Property of Mult.
If $ab = 0$, then $a = 0$ or $b = 0$ must be true.

④ Division

$\frac{0}{7} = 0$ "0 divided by 7"
"7 divided into 0"

① 0 divided by any nonzero # is 0

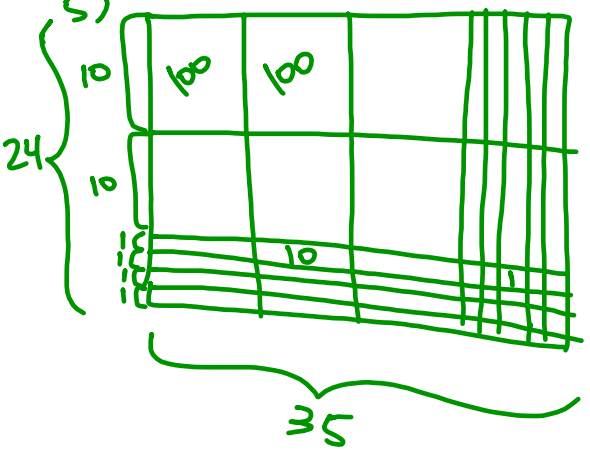
② $\frac{3}{0}$ is undefined
because $0 \cdot ? \neq 3$.

③ $\frac{0}{0}$ is undefined because "zero divided by any # is supposed to be zero" and "any # divided by itself is supposed to be one."
because $0 = 0 \cdot ?$ where ? could be literally anything

Exponents: $a^0 = 1$ true iff $a \neq 0$.
0^0 undefined

WS

5)



$24(35)$

$= (20+4)(30+5)$

$= (2(10)+4(1))(3(10)+5(1))$

$= 2(10)3(10)+2(10)5(1)$

$+4(1)3(10)+4(1)5(1)$

$= 6(100)+10(10)+12(10)+20(1)$

6) have \$5 ; want 5 dozen

1.20/dozen

w/ sale, \$0.95/dozen

5 dozen $5(0.95) = \$4.75$

10) $120 \div 24 = 120 \div (4 \cdot 6) = \frac{120}{4 \cdot 6} = \left(\frac{120}{4}\right)\left(\frac{1}{6}\right)$

$= 30\left(\frac{1}{6}\right)$

$= \frac{30}{6} = 5$

8) $17 \div 5 = 3.4$

$5 \cdot 3 = 15$

$17 - 15 = \textcircled{2}$ R

$2167 \div 341 = 6\frac{121}{341}$

$2167 \div 341 \approx 6.3548$

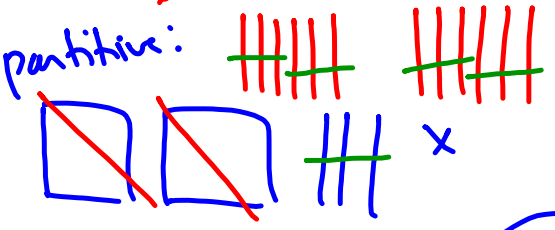
$341(6) = 2046 \Rightarrow 2167 - 2046 = 121$

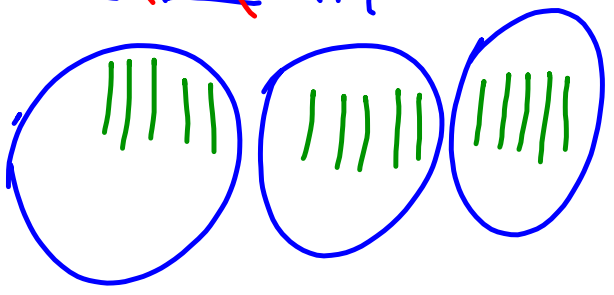
WS 1(a) $4_6 \times 25_6$

152_6

$231_6 \div 3_6 = 50_6 \text{ R} 1_6$

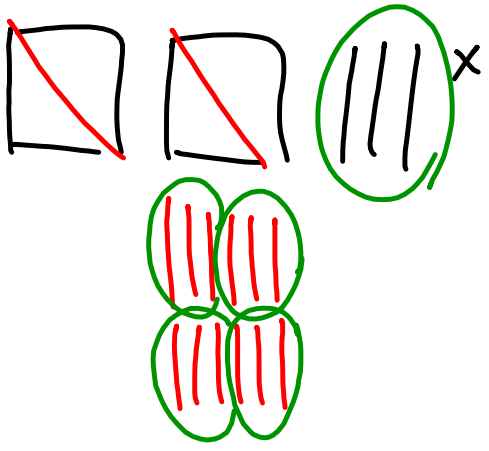
partitive:





$231_6 \div 3_6 = 50_6 \text{ R} 1_6$

meas.



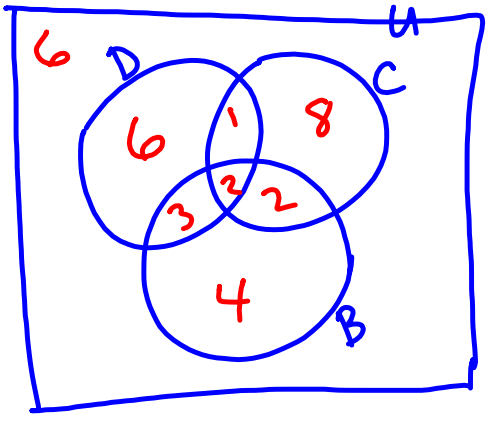
NS
30pts

31419 in Roman Numerals.

$\overline{X}\overline{X}\overline{X}MCDXIX$

VD
40 pts

✓10 cat, no dog
✓6 no pets
✓3 cat and dog
✓4 bird only
✓2 all 3 pets
✓6 bird, no dog
✓5 dog and bird
✓12 dog



PS
60pts

6 teams
A, B, C, D, E, F

each plays other twice

$2(15) = 30$ games

if they only played once:

$5+4+3+2+1$
$= 15$