

BE-Algebra I | MONDAY 9-15-08

① $\left(-\frac{2}{3}\right)\left(-\frac{1}{2}\right)$

② $-\frac{2}{3} + \frac{1}{2}$

③ $\frac{2}{3} \div -\frac{1}{2}$

④ $\left(-\frac{2}{3}\right) - \left(-\frac{1}{2}\right)$

⑤ SOLVE AND check:

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

ANS

⑤ $-\frac{2}{3}x + \frac{1}{2} = -\frac{1}{2}x + \frac{1}{3}$

$+\frac{2}{3}x$

$+\frac{2}{3}x$

$$\frac{1}{2} = \frac{1}{6}x + \frac{1}{3}$$

$-\frac{1}{3}$

$-\frac{1}{3}$

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

$$1 = x \quad \therefore \boxed{x = 1}$$

$$\frac{\frac{2}{3}}{\frac{4}{6}} - \frac{\frac{1}{2}}{\frac{3}{6}} = \frac{1}{6}$$

$$\frac{\frac{1}{2}}{\frac{3}{6}} - \frac{\frac{1}{3}}{\frac{2}{6}} = \frac{1}{6}$$

OK $-\frac{2}{3}(1) + \frac{1}{2} \stackrel{?}{=} -\frac{1}{2}(1) + \frac{1}{3}$

$$-\frac{4}{6} + \frac{3}{6} \stackrel{?}{=} -\frac{3}{6} + \frac{2}{6}$$

$$-\frac{1}{6} \stackrel{?}{=} -\frac{1}{6} \quad \checkmark$$

Return Quiz 4
Per 7 $\Rightarrow$ Homework DUE

Name the set of numbers to which each number belongs:

$$.6$$

RATIONAL, REAL

$$\frac{1}{9}$$

RATIONAL, REAL

$$.\overline{3}$$

RATIONAL, REAL

$$\pi$$

irrational, REAL

$$\sqrt{4}$$

$= 2 \therefore$ RATIONAL, REAL

$$\sqrt{2}$$

$\approx 1.414\dots$ NON-TERMINATING, NON-REPEATING
 $\therefore$ irrational, REAL

$$42$$

Integer, RATIONAL since $42 = \frac{42}{1}$, REAL

$$0$$

Integer, RATIONAL $\frac{0}{1}$, REAL $\left(\frac{0}{\text{ANYTHING}} = 0 \right)$

$$\frac{1}{0}$$

UNDEFINED, DIVISION BY 0 IS NOT ALLOWED in the set of REAL NUMBERS!

$$\frac{\text{ANYTHING}}{0} = \text{UNDEFINED}$$

Recall: Algebra is the science of
Reduction AND Reunion.

$\Downarrow$
 TAKING THINGS APART $\Downarrow$ PUTTING THINGS BACK TOGETHER

$$\frac{1}{3} = .\overline{3} \quad \text{by long division}$$

$\sqrt{2} = ?$ use algebra!

$\odot$ $\odot$ Ex Let $N = \sqrt{2}$

SINCE THE REPEATING PART
IS IN THE TENTHS POSITION,
MULTIPLY BOTH SIDES BY 10

$$10N = 2.\overline{2}$$

$-N$ $-\frac{1}{2}$

$$\frac{9N}{9} = \frac{2}{9}$$

Since $N = \bar{2}$ you can subtract N OR $\bar{2}$ from each side without violating the GRE.

Now solve for N

$$N = \frac{2}{9}$$

CK $9 \overline{) 2.00}$ ✓

Ⓔ Convert $0.\overline{41}$ to a fraction

$$\text{Let } N = .\overline{41}$$

$$100N = 41.\overline{41}$$

$$- N \quad - .\overline{41}$$

$$\frac{99N}{99} = \frac{41}{99}$$

$$\boxed{N = \frac{41}{99}}$$

CK: w/calculator

$$41 \div 99 = .41414141 \checkmark$$

Your turn: Convert $0.0\overline{3}$ to a fraction

$$\text{Let } N = 0.0\overline{3}$$

$$100N = 3.\overline{3}$$

$$- N \quad - .0\overline{3}$$

Look

$$99N = 3.3$$

$$\boxed{N = \frac{3.3}{99} = \frac{1}{30}}$$

CK w/calculator
✓

$$\frac{3.3}{99} = \frac{33}{990} = \frac{1}{30}$$

Homework: ① Convert $\overline{.8}$, $0.\overline{24}$, $0.00\overline{1}$ to fractions.