

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

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

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

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

$-\frac{1}{3}$

$-\frac{1}{3}$

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

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

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

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

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

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

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

Return Quiz 4
(time permitting)

1.

$$\left\{ \frac{a}{b} \text{ where } a, b \text{ are integers, } b \neq 0 \right\} = \underbrace{\text{RATIONAL NUMBERS}}_{\substack{\text{RATIO} \\ \text{fraction}}}$$
$$\{\text{terminating decimals, repeating decimals}\}$$

...the fact that the *Journal* is a journal of the American Psychological Association, the largest and most prestigious of the professional organizations in the field of psychology, and that the *Journal* is the most widely read and cited journal in the field of psychology, it is not surprising that the *Journal* has been the subject of numerous studies and analyses. One of the most recent studies, by [Author], [Year], found that the *Journal* has a high level of impact and influence in the field of psychology, and that it is one of the most important sources of information for researchers and practitioners alike. This study also found that the *Journal* has a high level of readability and accessibility, and that it is one of the most useful sources of information for researchers and practitioners alike. In addition, the study found that the *Journal* has a high level of credibility and trustworthiness, and that it is one of the most reliable sources of information in the field of psychology. These findings suggest that the *Journal* is a valuable resource for researchers and practitioners in the field of psychology, and that it should be used as a primary source of information for those who are interested in the field.

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0-7-6

$\frac{d}{dt} \left(\frac{1}{2} m v^2 + U(r) \right) = \frac{d}{dt} \left(\frac{1}{2} m v^2 \right) + \frac{d}{dt} U(r)$

Name the set of numbers to which each number belongs:

0.6

RATIONAL, REAL

$\frac{1}{9}$

RATIONAL, REAL

$0.\overline{3}$

RATIONAL, REAL

π

irrational, REAL

$\sqrt{4}$

$= 2 \therefore$ rational, real, integers

$\sqrt{2}$

$\approx 1.414...$ non-terminating, non-repeating
 $\therefore$ irrational, REAL

42

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

0

integer, RATIONAL $\frac{0}{1}$, REAL $\frac{0}{\text{ANYTHING}} = 0$

$\frac{1}{0}$

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.

$\downarrow$ $\downarrow$
 taking things apart putting things back together

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

$$.\overline{2} = ? \quad \text{use algebra!}$$

(*) (EX)

$$\text{Let } N = .\overline{2}$$

Since the repeating part
is over one place $\Rightarrow 10^1$
multiply both sides by 10

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

$$-N \quad -.\overline{2}$$

$$\begin{array}{r} 9N = 2 \\ \hline 9 \quad 9 \end{array}$$

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

Now solve for N

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

$$\underline{\underline{\text{CK}}} \quad 9 \overline{) 2.00} \begin{array}{l} 0.\overline{2} \\ 18 \\ \hline 20 \end{array} \quad \checkmark$$

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

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

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

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

$$\begin{array}{r} 99N = 41 \\ \hline 99 \quad 99 \end{array}$$

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

⇒ Since the repeating part is over 2 places, multiply by $10^2 = 10 \cdot 10 = 100$

⇒ Use $N = .\overline{41}$

↓ ↓
SUBTRACT FROM LEFT SIDE SUBTRACT REPEATING PART FROM RIGHT SIDE

Does this meet GRE??
Why?

CK: w/calculator

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

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

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

Multiply
By 10

$$10N = 3.333\overline{3}$$

$$-N \quad 0.033\overline{3}$$

LOOK

$$99N = 3.3$$

Since

$$\frac{3.3}{99} \cdot \frac{10}{10} = \frac{33}{990}$$

$$\boxed{N = \frac{3.3}{99} = \frac{33}{990} = \frac{11}{330} = \frac{1}{30}}$$

CK w/calculator
✓

Homework: Convert to fractions: $.8$, $.2\overline{4}$, $.00\overline{1}$