Review I

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Rational Numbers - Review I

1. Place each of the following rational numbers on the number line:

a) $\frac{13}{4}$	b) $\frac{-16}{5}$	c) $\frac{\sqrt{9}}{2}$	d) 1.9090	e) $1.\overline{777}$	f) $-2.\overline{999}$	g) $3\frac{2}{5}$

2. Arrange each of the following rational numbers from LEAST to GREATEST:

a) $2.09,\ \frac{5}{2},\ 2.0909,\ 2\frac{1}{10},\ 2.00999$
A B C D E

order: E, A, C, D, B

b) $\frac{7}{2},\ \frac{9}{3},\ \frac{11}{4},\ \frac{13}{5},\ \frac{15}{6}$
A B C D E

order: E, D, C, B, A

c) $\frac{2}{3},\ \frac{3}{4},\ \frac{8}{9},\ \frac{33}{36},\ \frac{11}{12}$
A B C D = E

Order: A, B, C, D and E

d) $-\frac{7}{2},\ -3.\overline{999},\ -\frac{3}{7},\ \frac{8}{10},\ \frac{4}{5}$
A B C D = E

order: B, A, C, D and E

e) $4.09,\ 4.\overline{09},\ 4.\overline{090},\ 4.099,\ 4.1$
A B C D E

order: A, B, C, D, E

3. Given the list of numbers below, indicate which of them are equal to each other:

$$\sqrt{9},\ \frac{3}{4},\ \sqrt{\frac{9}{16}},\ \frac{12}{4},\ \frac{75}{100},\ \frac{\sqrt{45}}{5},\ 3^{-1},\ \left(\frac{1}{3}\right)^{-1},\ \left(1\frac{1}{3}\right)^{-1}$$

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4. The value of $0.\dot{1}+0.\overline{12}+0.\overline{123}$ is:

(A) $0.\overline{343}$ (B) $0.\overline{355}$ (C) $0.3\overline{5}$ (D) $0.\overline{355446}$ (E) $0.\overline{355445}$

$$\begin{array}{l} 0.111111111111\ldots \\ +\ 0.121212121212\ldots \\ \quad 0.123123123123\ldots \\ \hline 0.355446355446\ldots \end{array}$$

$1.\overline{6} \times \frac{1}{10}$ $\quad 1\frac{6}{9} \times \frac{1}{10} = \frac{15}{90}$

5. Convert each of the following into a fraction:

a) 0.25 $\frac{25}{100} = \frac{1}{4}$	b) 0.125 $\frac{125}{1000} = \frac{1}{8}$	c) 0.35 $\frac{35}{100} = \frac{7}{20}$	d) 0.123 $\frac{123}{1000}$
e) 0.87 $\frac{87}{100}$	f) $0.\overline{333} = 0.\overline{3}$ $\frac{3}{9} = \frac{1}{3}$	g) $0.\overline{131313} = 0.\overline{13}$ $\frac{13}{99}$	h) $0.\overline{142857}$ $\frac{142857}{999999} = \frac{1}{7}$
i) $0.1\overline{666} = 1.\overline{6} \div 10$ $1\frac{6}{9} \div 10 = \frac{15}{9} \div 10 = \frac{1}{6}$	j) $0.8\overline{333} = 8.\overline{3} \div 10$ $8\frac{1}{3} \div 10 = \frac{25}{3} \div 10 = \frac{5}{6}$	k) 0.05 $\frac{5}{100} = \frac{1}{20}$	l) $0.0\overline{6666} = 0.0\overline{6}$ $\frac{6}{9} \div 10 = \frac{6}{90} = \frac{1}{15}$

6. Write each of the following fractions in decimal form:

a) $\frac{1}{4} = 0.25$	b) $\frac{3}{8} = 0.375$	c) $\frac{4}{6} = \frac{2}{3}$ $0.\overline{6}$	d) $\frac{15}{75} = \frac{1}{5} = 0.2$
e) $\frac{23}{99} = 0.\overline{23}$	f) $\frac{25}{999} = 0.0\overline{250}$	g) $\frac{174}{100} = 1.74$	h) $\frac{3}{7} = 0.\overline{142857}$
i) $\frac{7}{11} = \frac{63}{99} = 0.\overline{63}$	j) $\frac{5}{11} = \frac{45}{99} = 0.\overline{45}$	k) $\frac{123}{9999} = 0.0\overline{123}$	l) $0.\overline{076923}$?

7. Add the following without a calculator:

a) $\frac{3}{4}+\frac{1}{12}$ $\frac{10}{12} = \frac{5}{6}$	b) $\frac{4}{5}+\frac{7}{10}$ $\frac{15}{10} = \frac{3}{2}$	c) $\frac{-5}{6}+\frac{-11}{15}$ $-\frac{47}{30}$	d) $\frac{4}{15}+\frac{13}{20}$ $\frac{11}{12}$
e) $\frac{8}{11}+\frac{-23}{99}$ $\frac{49}{}$	f) $\frac{4}{8}+\frac{-3}{7}$ $\frac{1}{}$	g) $\frac{12}{5}+\frac{19}{10}$ $\frac{43}{}$	h) $3\frac{1}{4}+4\frac{2}{3}$ $\frac{95}{}$

11 99 $\frac{49}{99}$	8 7 $\frac{1}{14}$	5 10 $\frac{43}{10}$	4 3 $\frac{95}{12}$

i) $2\frac{3}{5}+4\frac{2}{3}$ $\frac{109}{15}$	j) $4\frac{1}{30}+3\frac{2}{5}$ $\frac{223}{30}$	k) $\frac{-13}{5}+1\frac{5}{6}$ $-\frac{23}{30}$	l) $\frac{6}{11}+\frac{3}{99}$ $\frac{19}{33}$

8. Evaluate the following without a calculator:

a) $1.75+0.\overline{1666}$ $1.91\overline{6}$	b) $0.\overline{333}+0.\overline{151515}$ $0.\overline{48}$	c) $0.875+0.25$ 1.125	d) $0.125+3.05$ 3.175
e) $1.125+0.\overline{111}$ $1.236\overline{1}$	f) $3.\overline{222}+1.\overline{324}$ $4.\overline{546}$	g) $-5.5+3.25$ -2.25	h) $3.85+0.431$ 4.281

9. Three friends decided to pool all their money together to buy French fries at McDonalds. Jason has \$0.84, Tom has \$0.74 and Sally has \$1.77. If a medium fries cost \$3.15 and a large fries cost \$4.31, what can they afford? How much more do they need to buy the large fries?

Total they have = $0.84 + 0.74 + 1.77 = \$3.35$ → medium

Need: $4.31 - 3.35 = \$0.96$ for large.

10. Two eagles are flying at the same elevation at 300meters above sea level. One eagle goes up 12.85 meters and the other one soars 24.65 meters down. What is the vertical distance between the two eagles?

Higher eagle is at: $300 + 12.85 = 312.85$ m
Lower " " " : $300 - 24.65 = 275.35$ m
Dist. b/w them = $312.85 - 275.35 = 37.5$ m

11. The temperature last night was $-12.5°$ and the temperature at noon was $13.5°$. If the temperature tonight is forecasted at $4.3°$ less than last night, what is the total drop in temperature from noon?

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12. Kathy owes her brother $5.83 and her friend Sharon 11.84. She currently has $16.83 in her wallet and her mom will give her $17.45. She needs to buy school supplies that cost a total of $11.32. How much money will she end up with if she bought all her supplies and paid back everyone.

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