

Math 9 Rational Numbers Test Review

Name: _____

Answer the following questions on the review paper. The answer key will be available on Ms. MacLeod's website (www.msmaclLeod05.weebly.com) on **THURSDAY** and should be checked once you have finished the review.

Part 1: Multiple Choice

1. Which numbers are rational numbers?

$$\frac{2}{11}, 3.6, 0.\overline{83}, \frac{11}{2}$$

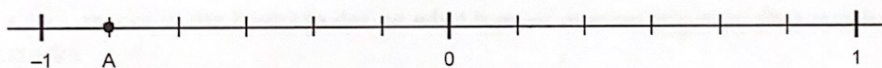
a. $\frac{2}{11}$ and 3.6

c. All of them

b. $\frac{2}{11}$ and $\frac{11}{2}$

d. $\frac{2}{11}$, 3.6, and $\frac{11}{2}$

2. Which rational number is represented by the letter A on the number line?



a. -0.5

c. -5

b. -0.8

d. $-\frac{5}{6}$

3. Which expression has the same sum as $-\frac{5}{6} + \frac{11}{12}$?

$$-\frac{10}{12} + \frac{11}{12} = \boxed{\frac{1}{12}}$$

i) $-\frac{11}{12} + \left(-\frac{5}{6}\right)$

ii) $\frac{11}{12} + \left(-\frac{5}{6}\right)$

iii) $\frac{5}{6} + \left(-\frac{11}{12}\right)$

iv) $\frac{11}{12} + \frac{5}{6}$

a) i

b) ii

c) iii

d) iv

4. Determine this difference.

$$\frac{18}{7} - \left(-\frac{5}{7}\right) = \frac{18}{7} + \left(\frac{5}{7}\right) = \frac{23}{7}$$

a. $\frac{23}{7}$

b. $-\frac{13}{7}$

c. $-\frac{23}{7}$

d. $\frac{13}{7}$

5. Determine this quotient.

$$\frac{11}{12} \div -\frac{5}{6} = \frac{11}{12} \times \frac{-6}{5} = \frac{-66}{60} = \frac{-11}{10}$$

a. $-\frac{55}{72}$

b. $-\frac{72}{55}$

c. $-\frac{10}{11}$

d. $-\frac{11}{10}$

6. The formula $F = \frac{9}{5} \times C + 32$ can be used to convert Celsius temperature to Fahrenheit.

Convert -20°C to Fahrenheit.

$$F = \frac{9}{5} \times (-20) + 32 = 9 \times (-4) + 32 = (-36) + 32 = -4^\circ\text{F}$$

a. 93.6°F

b. 13.8°F

c. -4°F

d. -68°F

Part 2: Short Answer

1. Put check marks in the boxes to define what type of number is given. One number can have multiple check marks.

Number	Irrational	Rational	Integer	Whole Number	Natural Number
a) 4		✓	✓	✓	✓
b) $7\bar{2}$		✓			
c) 0.245 789 457 ..	✓				
d) -4		✓	✓		
e) $\sqrt{5}$	✓				
f) 0		✓	✓	✓	
g) $\frac{1}{5}$		✓			

2. List three rational numbers that lie between each of the following:

a. 0.6 and 0.62

For example:

0.61 0.605 0.615

b. -0.401 and -0.4

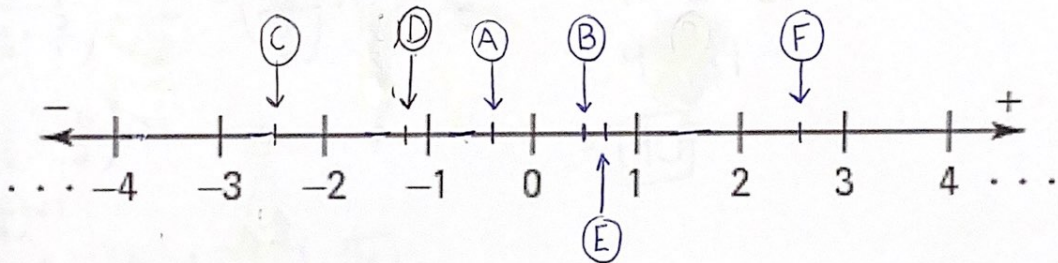
For example:

-0.4002 -0.4004 -0.4007

3. Place the following rational numbers on the number line below. Write the letter on the line, not the fraction. You can use a calculator to help.

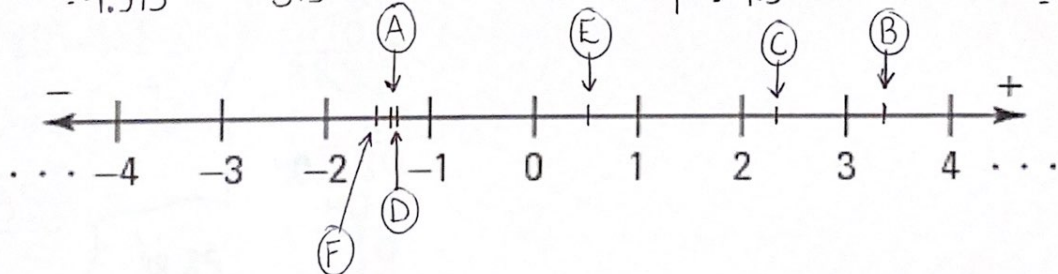
a.

$$\begin{array}{cccccc} \text{A} & \text{B} & \text{C} & \text{D} & \text{E} & \text{F} \\ \frac{-3}{8} = -0.375 & \frac{5}{9} = 0.\bar{5} & \frac{-10}{4} = -2\frac{1}{2} = -2.5 & -1\frac{1}{4} = -1.25 & \frac{7}{10} = 0.7 & \frac{8}{3} = 2\frac{2}{3} = 2.\bar{6} \end{array}$$



b.

$$\begin{array}{cccccc} \text{A} & \text{B} & \text{C} & \text{D} & \text{E} & \text{F} \\ \frac{-11}{8} = -1\frac{3}{8} = -1.375 & \frac{10}{3} = 3\frac{1}{3} = 3.\bar{3} & 2\frac{1}{4} = 2.25 & \frac{-8}{6} = -1\frac{2}{6} = -1\frac{1}{3} = -1.\bar{3} & \frac{7}{12} = 0.58\bar{3} & \frac{-6}{4} = -1\frac{3}{4} = -1.5 \end{array}$$



4. Evaluate the following questions. Don't use a calculator.

$$a) \frac{(4+3)}{(10-3)} = \frac{7}{7} = \boxed{1}$$

$$b) (7+2)^2 - (10+2) =$$

$$= 9^2 - 12$$

$$= 81 - 12 = \boxed{69}$$

$$c) 2 \left(\frac{\frac{-1}{3} + \frac{4}{6}}{\frac{1}{6} + \frac{-1}{2}} \right) + 1 =$$

$$= 2 \left(\frac{\frac{-1}{3} \times \frac{6}{4}}{\frac{1}{6} \times \frac{-2}{1}} \right) + 1 = 2 \left(\frac{\frac{-6}{12}}{\frac{-2}{6}} \right) + 1$$

$$= 2 \left(\frac{-6}{12} \times \frac{-6}{2} \right) + 1$$

$$= 2 \left(\frac{36}{24} \right) + 1$$

$$= 2 \left(\frac{3}{2} \right) + 1 = \frac{6}{2} + 1 = 3 + 1 = \boxed{4}$$

$$d) 11 - \left(\frac{8}{3} - \frac{2}{3} \right) + 3^4 =$$

$$= 11 - \left(\frac{6}{3} \right) + 81$$

$$= 11 - 2 + 81$$

$$= 9 + 81$$

$$= \boxed{90}$$

$$e. (-2.1)(18.5) - 6.8 \div 4$$

$$= (-38.85) - 6.8 \div 4$$

$$= (-38.85) - 1.7$$

$$= (-38.85) + (-1.7)$$

$$= \boxed{-40.55}$$

$$\begin{array}{r} 1185 \\ \times 21 \\ \hline 1185 \\ +3700 \\ \hline 3885 \\ \hline 1.7 \\ 40 \overline{)680} \\ -40 \downarrow \\ \hline 280 \\ -280 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 11 \\ 38.85 \\ + 1.70 \\ \hline 40.55 \end{array}$$

5. Which products are less than 0?

- i) $\left(-\frac{5}{12}\right)\left(\frac{9}{10}\right) = -\frac{45}{120}$ (less than 0)
- ii) $\left(\frac{12}{5}\right)\left(-\frac{3}{8}\right) = -\frac{36}{40}$ (less than 0)
- iii) $\left(-\frac{10}{9}\right)\left(-\frac{8}{3}\right) = \frac{80}{27}$ (greater than 0)
- iv) $\left(\frac{3}{8}\right)\left(\frac{12}{5}\right) = \frac{36}{40}$ (greater than 0)
- v) $\left(-\frac{12}{5}\right)\left(\frac{5}{12}\right) = -\frac{60}{60}$ (less than 0)

6. Melissa earns \$45.25 working in a coffee shop, and \$18.25 for babysitting. She spends \$31.64 on art supplies and \$15.48 on a computer game.

a) Write an addition statement to represent Melissa's income and expenditure.

$$45.25 + 18.25 + (-31.64) + (-15.48)$$

b) How much money does Melissa have left?

$$\begin{aligned} & 45.25 + 18.25 + (-31.64) + (-15.48) \\ & = 63.50 + (-31.64) + (-15.48) \\ & = 31.86 + (-15.48) = \boxed{\$16.38} \end{aligned}$$

$$\begin{array}{r} 45.25 \\ +18.25 \\ \hline 63.50 \end{array} \quad \begin{array}{r} 63.50 \\ -31.64 \\ \hline 31.86 \end{array}$$

$$\begin{array}{r} 31.86 \\ -15.48 \\ \hline 16.38 \end{array}$$

16. Make an order of operations equation for the following:

The following maximum temperatures were recorded for one week.

-2.6°C, -1.5°C, 2.2°C, 0.9°C, -1.6°C, -3.2°C, -2.7°C

Calculate the mean maximum temperature for the week.

Give your answer to the nearest tenth of a degree.

$$\frac{(-2.6) + (-1.5) + 2.2 + 0.9 + (-1.6) + (-3.2) + (-2.7)}{7}$$

$$= \frac{-8.5}{7} = \boxed{-1.2^\circ\text{C}}$$

$$\begin{array}{r} 2.6 \\ 1.5 \\ 1.6 \\ 3.2 \\ +2.7 \\ \hline 11.6 \end{array} \quad \begin{array}{r} 2.2 \\ +0.9 \\ \hline 3.1 \end{array}$$

$$\begin{array}{r} (-11.6) + 3.1 \\ \hline -8.5 \end{array}$$

*Go to nearest hundredth, so you know to round up or not.

$$\begin{array}{r} 121 \\ 70 \overline{) 8500} \\ \underline{-70} \\ 150 \\ \underline{-140} \\ 100 \end{array}$$