

EXAM REVIEW GRADE 9
Unit 3 – Rational Numbers

Name: _____ Class: _____

1. Order the numbers from greatest to least.

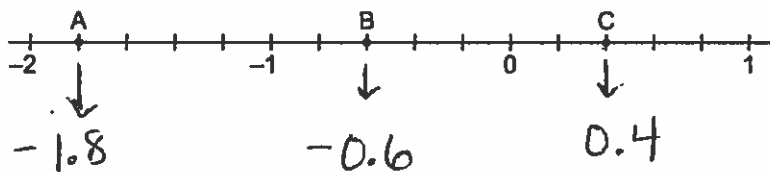
$$-3.1, \frac{5}{3}, -1.2, -\frac{1}{7}, 0.6$$

\downarrow
 \downarrow
 $\frac{5}{3}$
 0.6
 $-\frac{1}{7}$
 -1.2
 -3.1

$1.\bar{6}$
 -0.14

Greatest to Least

2. Write the rational number represented by each letter as a fraction.



3. Determine each sum or difference.

a) $-\frac{3}{5} + \left(-\frac{2}{3}\right) = -\frac{9}{15} + -\frac{10}{15}$
 $= -\frac{19}{15}$

b) $\frac{3}{8} - \left(-1\frac{1}{4}\right) = \frac{3}{8} + \frac{5}{4}$
 $= \frac{3}{8} + \frac{10}{8} = \frac{13}{8} = 1\frac{5}{8}$

c) $-4.1 - 3.5$

$$-4.1 + -3.5$$

$$= -7.6$$

d) $-53.9 - (-19.4)$

$$-53.9 + 19.4$$

$$= -34.5$$

4. A technician checked the temperature of a freezer and found that it was -15.7°C . She noted that the temperature had dropped 7.8°C from the day before. What was the temperature the day before?

day before temperature was: $-15.7 + 7.8$
 $= -7.9^{\circ}\text{C}$

5. Determine each product or quotient.

a) $-\frac{1}{4} \times \left(-\frac{3}{5}\right) = \frac{3}{20}$

b) $\left(-2\frac{1}{5}\right) \div \left(-4\frac{3}{4}\right) = \frac{-11}{5} \times \frac{4}{-19} = \frac{-44}{-95}$
 $= \frac{44}{95}$

c) $(-0.32) \div 1.6$

$$-0.2$$

d) $0.9 \times (-1.2)$

$$-1.08$$

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6. A thermometer on a freezer is set at -5.5°C . Each time the freezer door is opened, the temperature increases by 0.3°C . Suppose there is a power outage. How many times can the door be opened before the temperature of the freezer increases to 5°C ? Show how you found your answer.

$$5 - (-5.5)$$

$$5 + 5.5$$

10.5°C increase
to reach 5°C .

how many 0.3°C in 10.5°C ?

$$\frac{10.5}{0.3} = 35 \text{ times The door can be opened.}$$

7. A dump truck can hold $3\frac{3}{4}$ tonnes of gravel. How many trips are needed to move 35 tonnes of gravel using this truck?

$$35 \div 3\frac{3}{4}$$

$$35 \div \frac{15}{4}$$

$$\frac{35}{1} \times \frac{4}{15} = \frac{140}{15} = 9\frac{5}{15} = 9\frac{1}{3}$$

so 10 trips are needed to move 35 tonnes of gravel.

8. Evaluate:

a) $0.84 \times (-0.5) - (-2.3)$
 $-0.42 + 2.3$
 1.88

b) $(-\frac{1}{2}) + \frac{3}{5} \div [\frac{9}{10} - (-\frac{3}{5})] = (-\frac{1}{2}) + \frac{3}{5} \div (\frac{9}{10} + \frac{6}{10})$
 $= -\frac{1}{2} + \frac{3}{5} \div \frac{15}{10} = -\frac{1}{2} + \frac{3}{5} \times \frac{10}{15}$
 $= -\frac{1}{2} + \frac{30}{75} = \frac{-75}{150} + \frac{60}{150} = \frac{-15}{150}$
 $= -\frac{1}{10}$

9. Evaluate:

a) $-5.8 - 3.1 \times 0.5$
 $-5.8 - 1.55$
 -7.35

b) $-4\frac{2}{3} \div [(-\frac{1}{3}) + 4\frac{1}{6}] + (-3\frac{2}{5})$
 $-\frac{14}{3} \div [-\frac{1}{3} + \frac{25}{6}] + (-\frac{17}{5})$
 $-\frac{14}{3} \div [-\frac{2}{6} + \frac{25}{6}] + (-\frac{17}{5})$
 $-\frac{14}{3} \div [\frac{23}{6}] + (-\frac{17}{5})$
 $-\frac{14}{3} \times \frac{6}{23} + (-\frac{17}{5})$
 $-\frac{84}{69} + \frac{-17}{5}$
 $-\frac{420}{345} + \frac{-1173}{345}$
 $-\frac{1593}{345} = -\frac{531}{115}$

10. Evaluate with a calculator. Round to the nearest hundredth if necessary.

$$\frac{-8.6 \times 14.6 - 5.3 \div [(-19.4) - 8.6]}{(-2.9) \times 6.3 - (-9.5)}$$

$$= \frac{-125.56 - 5.3 \div [-28]}{-18.27 + 9.5}$$

$$= \frac{-125.56 + 0.19}{-8.77} = \frac{-125.37}{-8.77}$$

$$= +14.30$$