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UNIT 1: RATIONAL NUMBERS

**SECTION 3.6:
ORDER OF OPERATIONS
WITH RATIONAL
NUMBERS**

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MATH 9



WHAT'S THE POINT OF TODAY'S LESSON?

We will continue working on the Math 9 Specific Curriculum Outcome (SCO) "Numbers 3" OR "N3" and SCO "Numbers 4" OR "N4". They state:

"Demonstrate an understanding of rational numbers by: comparing and ordering rational numbers; solving problems that involve arithmetic operations on rational numbers."

AND

"Explain and apply the order of operations, including exponents, with and without technology."



What does THAT mean???

SCO N3 means that we will compare and order (largest vs smallest), add, subtract, multiply and divide fractions and any numbers that can be written as fractions. For example, sometimes we will work with $\frac{1}{2}$ or 0.5. We have to know how to work with both.

SCO N4 means that we will work with rational numbers, especially fractions, without using calculators.



HOMEWORK QUESTIONS???

(page 140, #4 and #7)

c ab

$$\begin{aligned}
 4. c) & \quad \left(-\frac{7}{10}\right)^{\textcircled{1}} \div \left(-\frac{2}{5}\right)^{\textcircled{3}} - \left(-\frac{1}{4}\right)^{\textcircled{2}} \times \frac{1}{2} \\
 & = \left(-\frac{7}{10}\right) \times \left(-\frac{5}{2}\right)^{-1} - \left(-\frac{1}{4}\right) \times \frac{1}{2} \\
 & \overset{2}{=} \frac{7}{4} \left(-\frac{1}{8}\right) \\
 & = \frac{14}{8} + \frac{1}{8} \\
 & = \frac{15}{8}
 \end{aligned}$$

HOMEWORK QUESTIONS???**(page 140, #4 and #7)***d* *a*

$$4. d) \quad \frac{6}{5} \times \left(-\frac{2}{3} + \frac{8}{3} \right)^2 - \frac{5}{12}$$

$$= \frac{6}{5} \times \left(\frac{6}{3} \right)^2 - \frac{5}{12}$$

$$= \frac{6}{5} \times 2^2 - \frac{5}{12}$$

$$= \frac{6}{5} \times \frac{4}{1} - \frac{5}{12}$$

$$= \frac{24}{5} - \frac{5}{12} \quad \text{LCM} = 60$$

$$= \frac{288}{60} - \frac{25}{60}$$

$$= \frac{263}{60}$$

HOMEWORK QUESTIONS???**(page 140, #4 and #7)**

$$\begin{aligned} 7. a) & \quad \left(-\frac{2}{3}\right)^{\textcircled{1}} \div \frac{1}{4}^{\textcircled{4}} + \frac{1}{2}^{\textcircled{2}} \times \frac{1}{2}^{\textcircled{3}} \times \frac{1}{3} \\ & = \left(-\frac{2}{3}\right) \times \frac{4}{1} + \frac{1}{12} \\ & = \frac{-8}{3} + \frac{1}{12} \\ & = \frac{-32}{12} + \frac{1}{12} \\ & = \frac{-31}{12} \\ & = -2 \frac{7}{12} \end{aligned}$$

HOMWORK QUESTIONS???

(page 140, #4 and #7)

$$\begin{aligned} 7. \text{ b) } & \left(-\frac{2}{3}\right)^{\textcircled{2}} \div \left[\frac{1}{4} \overset{\textcircled{1}}{+} \left(-\frac{1}{2}\right) \right]^{\textcircled{3}} \times \frac{1}{3} \\ & = \left(-\frac{2}{3}\right) \div \left(\frac{1}{4} - \frac{2}{4}\right) \times \frac{1}{3} \\ & = \left(-\frac{2}{3}\right) \div \left(-\frac{1}{4}\right) \times \frac{1}{3} \\ & = \left(-\frac{2}{3}\right) \times \left(-\frac{4}{1}\right) \times \frac{1}{3} \\ & = \frac{8}{9} \end{aligned}$$

SECTION 3.6: ORDER OF OPERATIONS WITH RATIONAL NUMBERS

What does **BEDMAS** stands for?

B: Brackets

E: Exponents

D: Division

M: Multiplication

A: Addition

S: Subtraction

}

**In order, from
left to right.**

}

**In order, from
left to right.**

CONCEPT REINFORCEMENT:

MMS9:

Page 140: #5 and #8

Page 141: #12 and #13