

CLO:

Students will review how to add, subtract, multiply and divide fractions to strengthen their understanding of fraction manipulation

Warm - Up

1. $\frac{(9+3)}{4} * 2^3 - (7 + 9 \div 3)$

$3 \cdot 8 - 10$

$24 - 10 = 14$

2. $36 \div 12 * 5 - 9 + 3^2$

$36 \div 12 * 5 - 9 + 9$

$3 * 5 - 9 + 9$

$15 - 9 + 9$

$6 + 9$

15

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Fractions !!!!

Fractions are a word that many students fear, there is a constant struggle as to how to deal with fractions.

But fear not, we will work through these fears and hopefully provide you with the tools you need to never fear fractions again!

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ADDING OR SUBTRACTING FRACTIONS

- To add or subtract fractions, the key is to make sure you have a **COMMON DENOMINATOR!**
- If you have a **common denominator**, then you can either add or subtract the fractions.
- If you do not have a **common denominator** then you will need to find a number that both denominators have in common.

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COMMON DENOMINATOR

$$\frac{3}{8} + \frac{17}{8} = \frac{20}{8} \stackrel{\div 4}{=} \boxed{\frac{5}{2}}$$

$$\frac{5}{6} - \frac{11}{6} = \frac{-6}{6} = -1$$

NO COMMON DENOMINATOR

$$2\left(\frac{13}{7}\right) + \left(\frac{9}{2}\right)^7$$
$$\frac{26}{14} + \frac{63}{14} = \boxed{\frac{89}{14}}$$

$$2\left(\frac{4}{3}\right) - \left(\frac{5}{2}\right)^3$$
$$\frac{8}{6} - \frac{15}{6} = \boxed{\frac{-7}{6}}$$

CLO:

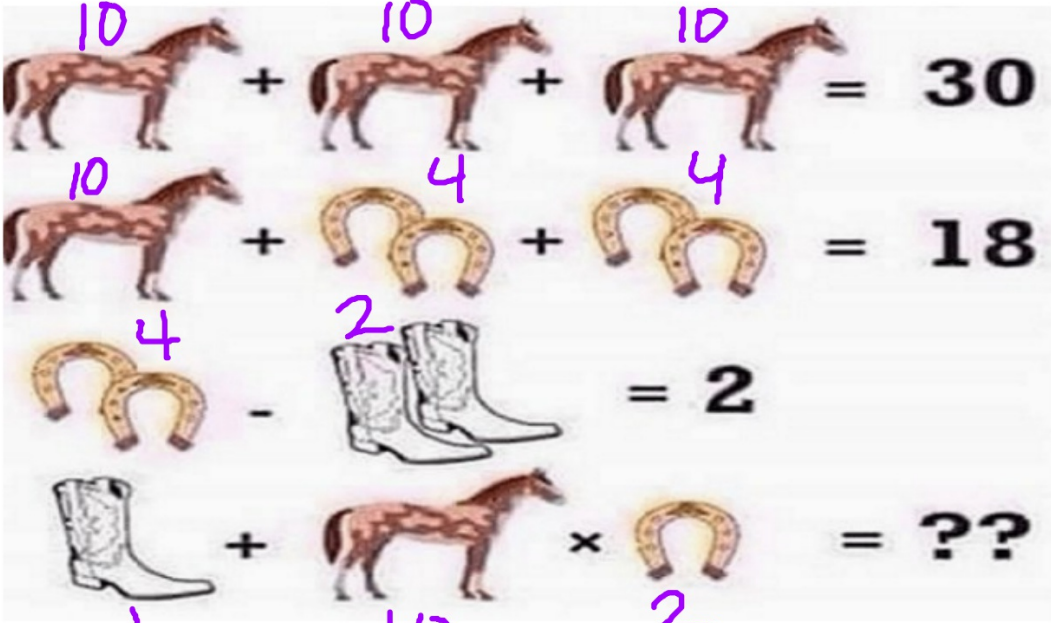
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PRACTICE

$$\frac{25}{7} - \frac{16}{7} = \frac{9}{7} \quad 16\left(\frac{3}{2}\right) + \left(\frac{9}{16}\right)^2 \quad \frac{15}{8} + \frac{3}{8} = \frac{18}{8} = \frac{9}{4}$$

$$\left(\frac{11}{2}\right) + \left(\frac{2}{5}\right)^2 = \frac{55}{10} + \frac{4}{10} = \frac{59}{10} \quad 4\left(\frac{13}{3}\right) - \left(\frac{1}{4}\right)^3 = \frac{52}{3} - \frac{1}{4} = \frac{208}{12} - \frac{3}{12} = \frac{205}{12}$$

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41
42
21
80
44
48
22

1 + 20


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MULTIPLYING FRACTIONS

When you multiply fractions, no need for any common denominator, just multiply straight across and reduce if necessary.

Example:


$$\frac{12}{5} \xrightarrow{*} \frac{6}{7} = \frac{72}{35}$$

$$\frac{11}{3} * \frac{6}{5} = \frac{22}{5}$$

Handwritten work showing the multiplication of 11/3 and 6/5. The numerators 11 and 6 are multiplied to get 66, and the denominators 3 and 5 are multiplied to get 15. The result is 66/15, which is then simplified by dividing both numerator and denominator by 3 to get 22/5.

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Practice:

$$\cancel{7} \frac{21}{2} * \frac{7}{\cancel{3}1}$$

$$\frac{21 \cdot 7}{2 \cdot 3}$$

$$\frac{49}{2}$$

$$\frac{15}{8} * \frac{9}{2} = \frac{135}{16}$$

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DIVIDING FRACTIONS

- No need for a common denominator here, either.
- When dividing fractions all you need to do is remember
SKIP, FLIP, MULTIPLY!

SKIP THE FIRST FRACTION

FLIP THE SECOND FRACTION

THEN MULTIPLY THE TWO FRACTIONS TOGETHER

REDUCE IF YOU CAN

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EXAMPLE:

$$\frac{21}{2} \div \frac{7}{3}$$

$\frac{21}{2} \cdot \frac{3}{7}$

$\frac{3 \cdot 3}{2 \cdot 1} = \frac{9}{2}$

$$\frac{15}{8} \div \frac{9}{2}$$

$\frac{15}{8} \cdot \frac{2}{9}$

$\frac{5}{12}$

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PRACTICE

$$15 \div \frac{7}{3}$$

$$\frac{15}{1} \cdot \frac{3}{7} = \frac{45}{7}$$

$$\frac{\frac{8}{9} \div 10}{\frac{4}{9} \cdot \frac{1}{10} \div 5} = \frac{4}{45}$$

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MIXED FRACTIONS

- TO CONVERT A MIXED FRACTION TO AN IMPROPER FRACTION, **MULTIPLY** THE **BASE** BY THE **DENOMINATOR**, THEN **ADD** THE **NUMERATOR** WHICH WILL GIVE YOU YOUR **SUM**
- TAKE YOUR **SUM** AND PLACE IT OVER THE **DENOMINATOR**

MIXED FRACTION

Base → $3\frac{5}{8}$ ← num.
↑
den.
 $3 \cdot 8 + 5$
 $24 + 5$ 29

IMPROPER FRACTION

$$\frac{29}{8}$$

