Mixed Operations with Fractions Name __Solutions__

Review: Discuss with your group and write a rule or procedure for each operation with fractions.

Addition:

get a common
denominator
add the numerators

Subtraction:

get a common
denominator
subtract the numerators

Multiplication:

cross-cancel, then
multiply straight
across

Division:

flip the second one,
then multiply
(sit • flip)

Perform each operation specified and reduce your answer to simplest terms.

1. $\dfrac{2}{3} \cdot \dfrac{4}{4} + \dfrac{3}{4} \cdot \dfrac{3}{3}$

$= \dfrac{8}{12} + \dfrac{9}{12}$

$= \dfrac{17}{12}$

2. $\dfrac{2}{3} \cdot \dfrac{4}{4} - \dfrac{3}{4} \cdot \dfrac{3}{3}$

$= \dfrac{8}{12} - \dfrac{9}{12}$

$= -\dfrac{1}{12}$

3. $\dfrac{2}{3} \cdot \dfrac{3}{4} = \dfrac{1}{2}$

4. $\dfrac{2}{3} \div \dfrac{3}{4}$

$= \dfrac{2}{3} \cdot \dfrac{4}{3} = \dfrac{8}{9}$

5. $-\dfrac{1}{6} \cdot \dfrac{3}{12}$

$-\dfrac{2}{12} - \dfrac{3}{12}$

$= -\dfrac{5}{12}$

6. $\left(\dfrac{2}{3}\right)^2$

$= \dfrac{2}{3} \cdot \dfrac{2}{3}$

$= \dfrac{4}{9}$

7. $-\dfrac{7}{8} \div \dfrac{1}{4}$

$-\dfrac{7}{\cancel{8}_2} \cdot \dfrac{\cancel{4}^1}{1} = -\dfrac{7}{2}$

8. $\dfrac{\cancel{9}^3}{\cancel{16}_{\cancel{8}_2}} \cdot \dfrac{\cancel{4}^1}{3} \cdot \dfrac{2}{5} = \dfrac{3}{10}$

9. $\dfrac{1}{2 \cdot 4} - \dfrac{3}{4 \cdot 2} + \dfrac{5}{8}$ LCD = 8

$= \dfrac{4}{8} - \dfrac{6}{8} + \dfrac{5}{8}$

$= \dfrac{3}{8}$

10. $-2\dfrac{3}{8} + \dfrac{11}{6}$ LCD = 24

$-\dfrac{19 \cdot 3}{8 \cdot 3} + \dfrac{11 \cdot 4}{6 \cdot 4}$

$\dfrac{-57}{24} + \dfrac{44}{24} = \dfrac{-13}{24}$

11. $-\dfrac{\cancel{6}^2}{1} \cdot \left(\dfrac{1}{\cancel{3}_1}\right)$

$= -\dfrac{2}{1} = -2$

12. $1\dfrac{1}{2} \div (-3)$

$= \dfrac{3}{2} \div \dfrac{-3}{1}$

$= \dfrac{\cancel{3}^1}{2} \cdot -\dfrac{1}{\cancel{3}_1} = -\dfrac{1}{2}$

13. Jamie walks $\dfrac{3}{4}$ of a mile to get on the bus and then $\dfrac{2}{5}$ of a mile from the bus stop to the store. To go to the store and back home, how many miles does Jamie walk? Show all of your steps and write your answer in a complete sentence.

Jamie walks 2 ³⁄₁₀ miles.

$\dfrac{3}{4} + \dfrac{3}{4} + \dfrac{2}{5} + \dfrac{2}{5}$

$= \dfrac{6 \cdot 5}{4 \cdot 5} + \dfrac{4 \cdot 4}{5 \cdot 4}$

$= \dfrac{30}{20} + \dfrac{16}{20} = \dfrac{46}{20} = \dfrac{23}{10} = 2\dfrac{3}{10}$ miles

14. Carlos is making Polvorones, which are Mexican Wedding Cookies. The recipe calls for $1\dfrac{1}{4}$ cups of butter. If the recipe makes five dozen cookies, how much butter is in one cookie? (Bonus if you can convert the answer to tablespoons or teaspoons.)

$1\dfrac{1}{4} \div 60$ cookies

$5 \times 12 = 60$ cookies

There is $\dfrac{1}{48}$ c. of butter in each cookie

$\dfrac{\cancel{5}^1}{4} \cdot \dfrac{1}{\cancel{60}_{12}} = \dfrac{1}{48}$ c. in one cookie

4 T in ¼ c

$\dfrac{1}{16}$ c = 1 T

$\dfrac{1}{48} \div \dfrac{1}{16}$

$= \dfrac{1}{48} \cdot \dfrac{16}{1} = \dfrac{1}{3}$

There is ⅓ tablespoon butter in each cookie