

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Math 8 Section 2.6 Combined Operations with Fractions**

1. Evaluate the following. Simplify the expression into lowest terms:

Rakina and Tina

<p>a) <math>\frac{5}{2} \times \frac{4}{15} + \frac{1}{2}</math></p> <p><math>\frac{2}{3} + \frac{1}{2}</math></p> <p><math>\frac{4}{6} + \frac{3}{6} = \frac{7}{6}</math></p>	<p>b) <math>\frac{15}{14} \times \frac{21}{36} - \frac{2}{3}</math></p> <p><math>\frac{5}{8} - \frac{2}{3}</math></p> <p><math>\frac{15}{24} - \frac{16}{24} = -\frac{1}{24}</math></p>	<p>c) <math>\frac{1}{3} - 2\frac{2}{3} \times 5\frac{1}{4}</math></p> <p><math>\frac{1}{3} - \frac{8}{3} \times \frac{21}{4}</math></p> <p><math>\frac{1}{3} - \frac{14}{1} = \frac{1}{3} - \frac{42}{3}</math></p> <p><math>= -\frac{41}{3}</math></p>	<p>d) <math>\frac{35}{36} \div \frac{49}{48} - \frac{2}{7}</math></p> <p><math>\frac{35}{36} \times \frac{48}{49} - \frac{2}{7}</math></p> <p><math>\frac{20}{21} - \frac{2}{7}</math></p> <p><math>\frac{20}{21} - \frac{6}{21} = \frac{14}{21} = \frac{2}{3}</math></p>
<p>e) <math>\frac{2}{3} + \frac{6}{7} \div \frac{18}{14} - \frac{1}{2}</math></p> <p><math>\frac{2}{3} + \frac{14}{18} - \frac{1}{2}</math></p> <p><math>\frac{4}{3} - \frac{1}{2} = \frac{8}{6} - \frac{3}{6} = \frac{5}{6}</math></p>	<p>f) <math>\frac{16}{21} \times \frac{30}{24} \times \frac{27}{18} \div \frac{9}{14}</math></p> <p><math>\frac{10}{7} \times \frac{14}{9} = \frac{20}{9}</math></p>	<p>g) <math>\frac{64}{9} \times \frac{27}{32} \times \frac{24}{45} \div \frac{48}{18} \times \frac{24}{9}</math></p> <p><math>\frac{64}{20} \times \frac{18}{5} \times \frac{9}{24} = \frac{18}{5} = \frac{6}{5}</math></p>	<p>h) <math>\frac{9}{10} - \frac{3}{5} \times \frac{15}{2} + \frac{2}{5}</math></p> <p><math>\frac{9}{10} - \frac{9}{2} + \frac{2}{5}</math></p> <p><math>-\frac{36}{10} + \frac{2}{5} = -\frac{4}{10}</math></p> <p><math>= -\frac{32}{10} = -\frac{12}{5}</math></p>
<p>i) <math>\frac{7}{8} \times \frac{2}{7} + 2\frac{1}{4} \times \frac{8}{9}</math></p> <p><math>\frac{1}{4} + \frac{9}{4} \times \frac{8}{9}</math></p> <p><math>\frac{1}{4} + \frac{2}{1} = \frac{9}{4}</math></p>	<p>j) <math>\frac{\frac{1}{2} - \frac{1}{3}}{\frac{1}{4}}</math></p> <p><math>\frac{(\frac{3}{6} - \frac{2}{6})}{\frac{1}{4}}</math></p> <p><math>= \frac{(\frac{1}{6})}{(\frac{1}{4})} = \frac{1}{6} \times \frac{4}{1} = \frac{2}{3}</math></p>	<p>k) <math>\frac{\frac{2}{3} - \frac{2}{5}}{\frac{3}{2}}</math></p> <p><math>\frac{\frac{10}{15} - \frac{6}{15}}{\frac{3}{2}} = \frac{(\frac{4}{15})}{(\frac{3}{2})}</math></p> <p><math>\frac{4}{15} \div \frac{3}{2} = \frac{4}{15} \times \frac{2}{3} = \frac{8}{45}</math></p>	<p>l) <math>\frac{2}{3} \div \left( \frac{1}{21} + 1\frac{2}{3} \right)</math></p> <p><math>\frac{2}{3} \div \left( \frac{1}{21} + \frac{5}{3} \right)</math></p> <p><math>= \frac{2}{3} \div \left( \frac{1}{21} + \frac{35}{21} \right)</math></p> <p><math>= \frac{2}{3} \div \left( \frac{36}{21} \right)</math></p> <p><math>= \frac{2}{3} \times \frac{7}{36} = \frac{7}{18}</math></p>
<p>m) <math>3\frac{2}{3} - \left( -1\frac{3}{5} \right) \times \left( \frac{10}{6} \right)</math></p> <p><math>\frac{11}{3} - \left( -\frac{8}{5} \right) \times \frac{5}{3}</math></p> <p><math>\frac{11}{3} + \frac{8}{3} = \frac{19}{3}</math></p>	<p>n) <math>\frac{1}{2} - \frac{2}{3} \times \frac{6}{14} - \frac{2}{3}</math></p> <p><math>\frac{1}{2} - \left( \frac{2}{3} \times \frac{3}{7} \right) - \frac{2}{3}</math></p> <p><math>\frac{1}{2} - \frac{2}{7} - \frac{2}{3}</math></p> <p><math>\frac{21}{42} - \frac{12}{42} - \frac{28}{42}</math></p> <p><math>= \frac{21 - 12 - 28}{42} = -\frac{19}{42}</math></p>	<p>o) <math>\left( \frac{2}{3} \right)^2 \div \frac{8}{9} - \left( \frac{2}{3} + \frac{5}{6} \right)</math></p> <p><math>\frac{4}{9} \times \frac{9}{8} - \left( \frac{4}{6} + \frac{5}{6} \right)</math></p> <p><math>\frac{1}{2} - \frac{9}{6}</math></p> <p><math>= \frac{3}{6} - \frac{9}{6} = -\frac{6}{6} = -1</math></p>	<p>p) <math>3\frac{1}{5} \times 6\frac{1}{4} \div 13\frac{1}{3}</math></p> <p><math>\frac{16}{5} \times \frac{25}{4} \div \frac{40}{3}</math></p> <p><math>\frac{16}{5} \times \frac{25}{4} \times \frac{3}{40}</math></p> <p><math>= \frac{3}{2}</math></p>

$q) \left(3\frac{2}{5} - 1\frac{2}{10}\right)^2 - \frac{2}{3}$ $\left(\frac{17}{5} - \frac{12}{10}\right)^2 - \frac{2}{3}$ $\left(\frac{34-12}{10}\right)^2 - \frac{2}{3}$ $\left(\frac{22}{5}\right)^2 - \frac{2}{3}$ $= \frac{121}{25} - \frac{2}{3}$ $= \frac{363}{75} - \frac{50}{75}$ $= \frac{313}{75}$	$r) \left(\frac{3}{2} + 2\frac{5}{8}\right) \times 1\frac{13}{3}$ $\left(\frac{3}{2} + \frac{21}{8}\right) \times \frac{16}{3}$ $\left(\frac{12+21}{8}\right) \times \frac{16}{3}$ $\frac{33}{8} \times \frac{16}{3}$ $= 22$	$s) \frac{\left(2\frac{1}{2} + 3\frac{3}{4}\right) \times \frac{8}{50}}{\frac{2}{5}}$ $\frac{\left(\frac{5}{2} + \frac{15}{4}\right) \times \frac{8}{50}}{\frac{2}{5}}$ $\frac{\left(\frac{25}{4} + \frac{15}{4}\right) \times \frac{8}{50}}{\frac{2}{5}}$ $\frac{\frac{40}{4} \times \frac{8}{50}}{\frac{2}{5}}$ $\frac{10 \times \frac{8}{50}}{\frac{2}{5}}$ $\frac{\frac{80}{50}}{\frac{2}{5}} = \frac{8}{5} \times \frac{5}{2} = 2$
---	--	---

2. The L.A. Lakers play an 84 game season. They lost  $\frac{3}{7}$  of their games in the first half of the season and  $\frac{5}{14}$  of their games in the second half of the season. How many games did they lose?

84 Games

1st Half:  $42 \times \left(\frac{3}{7}\right) = 18$

2nd Half:  $42 \times \frac{5}{14} = 15$

Total = 18 + 15 = 33 Games

3. A computer company manufactures and delivers computer chip. The chips are packaged in boxes that are cubes with edge length 25cm. The cost of the chips is \$16/cm<sup>3</sup>, and delivery costs \$80 per 25km. One customer orders 120 boxes of wood chips and she lives 750 km from the supplier. The expression for the cost in dollars is:  $\frac{80 \times 750}{25} + \frac{625 \times 16 \times 120}{100,000}$ . How much is the cost?

$\frac{80 \times 750}{25} + \frac{625 \times 16 \times 120}{100,000}$

$\frac{80 \times 3 \times 5 \times 10}{25} + \frac{25 \times 5 \times 4 \times 4 \times 120}{100,000}$

$2400 + 12 = 2412$

4. Jacob scored 85%, 90%, and 74% on his first three tests. Then he scored 99%, 84% and 75% on his next three tests. What is the difference in the average of the first three tests compared to the last three tests?

1st 3 Test =  $\frac{85 + 90 + 74}{3} = \frac{249}{3} = 83\%$

2nd 3 Test =  $\frac{99 + 84 + 75}{3} = \frac{258}{3} = 86\%$

Difference is  $3\%$

5. Larry watched one television program for  $\frac{1}{3}$  of an hour and then watched another program for 15 min. For what fraction of an hour did Larry watch television?

①  $\frac{1}{3}$  of an hour = 20 min

② Total: 20 + 15 = 35 min

③ Fraction:  $\frac{35}{60} = \frac{7}{12}$

6. Keon baked a wild blueberry upside-down cobbler. Shawnie ate  $\frac{1}{6}$  of the cobbler. Iris ate  $\frac{1}{5}$  of what was left. Chan ate  $\frac{1}{4}$  of what was left after that. Cami ate  $\frac{1}{3}$  of what was left after that. Demi ate  $\frac{1}{2}$  of what was left after that. How much of the original cobbler remained?

