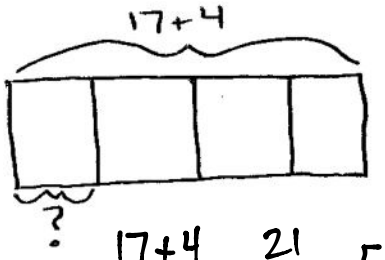
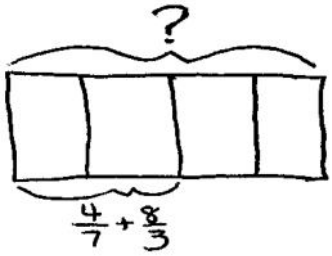
Name _____ Date _____

1. Write expressions to match the diagrams. Then evaluate.



$\frac{17+4}{4} = \frac{21}{4} = 5\frac{1}{4}$



$\left(\frac{4}{7}+\frac{8}{3}\right)\times 2$

$\left(\frac{12}{21}+\frac{56}{21}\right)\times 2$

$= \frac{68}{21}\times 2$

$= \frac{136}{21} = 6\frac{10}{21}$

2. Circle the expression(s) that give the same product as $6 \times 1\frac{3}{8}$. Explain how you know.

$6 \times \frac{3}{8}$

~~$8 \div (3 \times 6)$~~

$3 \div 8 \times 6$ same as $\frac{3}{8} \times 6$

$(6 \times 3) \div 8$ Associative Property

~~$(8 \div 6) \times 3$~~

~~$6 \times \frac{8}{3}$~~

$\frac{3}{8} \times 6$ Commutative Property

3. Write an expression to match, then evaluate.

a. $\frac{1}{8}$ the sum of 23 and 17.

$\frac{1}{8} \times (23+17) = \frac{1}{8} \times 40 = \frac{40}{8} = 5$

b. Subtract 4 from $\frac{1}{6}$ of 42.

$\left(\frac{1}{6} \times 42\right) - 4 = \left(\frac{42}{6}\right) - 4 = 7 - 4 = 3$

c. 7 times as much as the sum of $\frac{1}{3}$ and $\frac{4}{5}$.

$7 \times \left(\frac{1}{3}+\frac{4}{5}\right) = 7 \times \frac{17}{15} = 7 \times 1\frac{2}{15}$

$= 7\frac{14}{15}$

d. $\frac{2}{3}$ of the product of $\frac{3}{8}$ and 16.

$\frac{2}{3} \times \left(\frac{3}{8} \times 16\right) = \frac{2}{3} \times \frac{48}{8} = \frac{2}{3} \times 6 = 4$

e. 7 copies of the sum of 8 fifths and 4.

$7 \times \left(\frac{8}{5}+4\right) = 7 \times \left(1\frac{3}{5}+4\right)$

$= 7 \times 5\frac{3}{5}$

$= 35 + \frac{21}{5}$

$= 35 + 4\frac{1}{5} = 39\frac{1}{5}$

f. 15 times as much as 1 fifth of 12.

$15 \times \left(\frac{1}{5} \times 12\right) = \left(15 \times \frac{1}{5}\right) \times 12$

$= 3 \times 12$

$= 36$

4. Use <, >, or = to make true number sentences without calculating. Explain your thinking.

a. $\frac{2}{3} \times (9 + 12)$ > $15 \times \frac{2}{3}$

$\frac{2}{3}$ of 21 $\frac{2}{3}$ of 15

b. $\left(3 \times \frac{5}{4}\right) \times \frac{3}{5}$ > $\left(3 \times \frac{5}{4}\right) \times \frac{3}{8}$

$\frac{15}{20}$ of 3 $\frac{15}{32}$ of 3

because $\frac{15}{20}$ is bigger than $\frac{15}{32}$

c. $6 \times (2 + \frac{32}{16})$ > $(6 \times 2) + \frac{32}{16}$

6 copies of 2 and 6 copies of $\frac{32}{16}$

6 copies of 2 and 1 copy of $\frac{32}{16}$

5. Fantine bought flour for her bakery each month and recorded the amount in the table to the right. For (a–c) write an expression that records the calculation described. Then solve to find the missing data in the table.

a. She bought $\frac{3}{4}$ of January's total in August.

$\frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$

b. She bought $\frac{7}{8}$ as much in April as she did in October and July combined.

$\frac{7}{8} \times \left(1\frac{1}{4} + \frac{3}{4}\right) = \frac{7}{8} \times 2 = \frac{7 \times 2}{4 \times 8}$

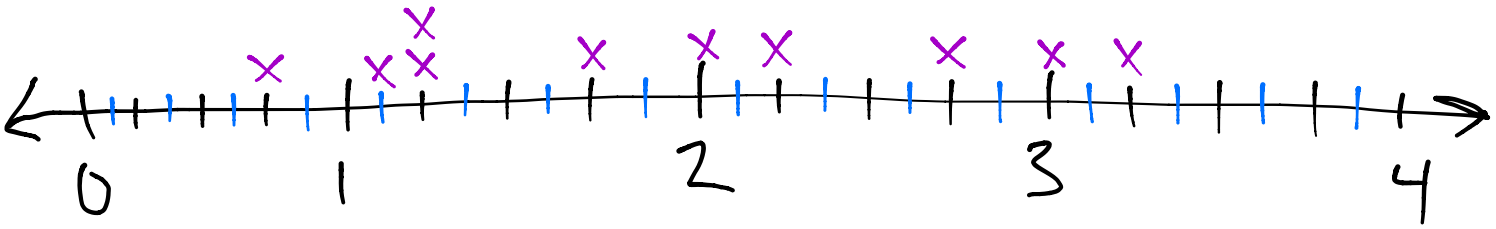
$= \frac{7}{4} = 1\frac{3}{4}$

Month	Amount (in pounds)
January	3
February	2
March	$1\frac{1}{4}$
April	$1\frac{3}{4}$
May	$\frac{9}{8} = 1\frac{1}{8}$
June	$3\frac{1}{4}$
July	$1\frac{1}{4}$ $2\frac{1}{4}$
August	$2\frac{1}{4}$
September	$\frac{11}{4} = 2\frac{3}{4}$
October	$\frac{3}{4}$

c. In June she bought $\frac{1}{8}$ pound less than three times as much as she bought in May.

$$\left(3 \times \frac{9}{8}\right) - \frac{1}{8} = \frac{27}{8} - \frac{1}{8} = \frac{26}{8} = 3\frac{2}{8} = 3\frac{1}{4}$$

d. Display the data from the table in a line plot.



e. How many pounds of flour did Fantine buy from January to October?

$$3 + 2 + 1\frac{1}{4} + 1\frac{3}{4} + 1\frac{1}{8} + 3\frac{1}{4} + 1\frac{1}{4} + 2\frac{1}{4} + 2\frac{3}{4} + \frac{3}{4}$$

$$16 + \frac{13}{4} + \frac{1}{8}$$

$$16 + 3\frac{1}{4} + \frac{1}{8}$$

$$19\frac{3}{8}$$

$19\frac{3}{8}$ pounds