1. A fraction model is shown below.

1   2   3

[fraction model: three groups of four boxes, first box shaded in each group]

¼   ¼   ¼
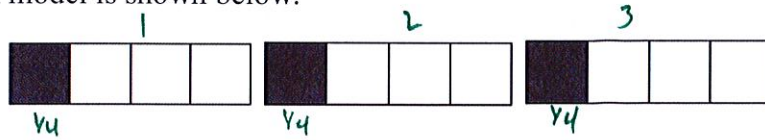
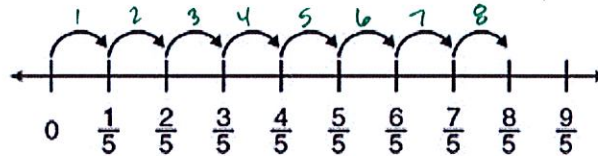Which equation correctly shows the fraction of the shaded parts?

a) $\frac{1}{4} + 3 = 3\frac{1}{4}$

b) $3 \times \frac{1}{4} = \frac{3}{4}$

c) $\frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$

d) $\frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$

2. What is the product represented by the model shown below?

1   2   3   4   5   6   7   8

[number line from 0 with tick marks at $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}, \frac{5}{5}, \frac{6}{5}, \frac{7}{5}, \frac{8}{5}, \frac{9}{5}$ with 8 jumps]

$$0 \quad \frac{1}{5} \quad \frac{2}{5} \quad \frac{3}{5} \quad \frac{4}{5} \quad \frac{5}{5} \quad \frac{6}{5} \quad \frac{7}{5} \quad \frac{8}{5} \quad \frac{9}{5}$$

a) $\frac{1}{5}$

$8 \times \frac{1}{5}$

b) $\frac{5}{8}$

c) $\frac{5}{5}$

d) $\frac{8}{5}$

3. Jane and Melissa are trying out for the swim team. Jane swam $\frac{2}{3}$ of a mile. Melissa swam 4 times as far as Jane. How far did Melissa swim?

a. $\frac{6}{3}$ of a mile

b. $\frac{2}{7}$ of a mile

c. $\frac{8}{3}$ of a mile

d. $\frac{2}{12}$ of a mile

$$\frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} = \frac{8}{3}$$

$$4 \times \frac{2}{3} = \frac{8}{3}$$

4. Jackson has 3 cats. He feeds $\frac{3}{4}$ of a cup of cat food to each cat every day. How many cups of cat food does Jackson need to feed his 3 cats for a week?

a. 10 cups

b. $10\frac{3}{4}$ cups

c. 15 cups

d. $15\frac{3}{4}$ cups

$$\frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{9}{4}$$

$$7 \times \frac{9}{4} = \frac{63}{4} = 15\frac{3}{4}$$

$4 \times 10 = 40$
$4 \times 15 = 60$

5. A professional soccer player buys 16 acres of land. He plans to build a house on the land but wants to use $\frac{2}{8}$ of the land to put his own soccer field and facility on. How many acres of land will the soccer player need for his soccer field and facility?

a. $\frac{32}{2}$

b. $\frac{32}{8}$

c. $\frac{32}{128}$

d. $\frac{16}{128}$

$\frac{2}{8}$ of 16

$$\frac{2}{8} \times 16 = \frac{32}{8}$$

6. Alexandra has 60 flowers in a vase. She gave $\frac{2}{10}$ of the flowers to her neighbor as a random act of kindness. How many flowers does Alexandra still have left in her vase?

a. 12

b. 20

c. 48

d. 80

$\frac{2}{10}$ of 60 = 12

60 - 12 = 48

or $\frac{8}{10}$ of 60 = $\frac{480}{10}$ = 48

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7. Bill is looking to rent a storage unit. The storage company told him that their largest storage unit measures 8 feet by 24 feet but Bill doesn't think that he needs all of that space. The next size is $\frac{6}{8}$ as long and $\frac{6}{8}$ as wide. What are the measurements of the smaller storage unit?
    a. 7 feet by 18 feet
    b. 5 feet by 13 feet
    c. 9 feet by 21 feet
    d. 6 feet by 18 feet

$\frac{6}{8}$ of $8 = 6$ x
$\frac{6}{8}$ of $24 = 18$

$\frac{3}{10}$ of $50 = 15$
$15 \times 6 = 90$

8. Walker had 6 containers of Legos.
    a. Each container had 50 Legos.
    b. He built a city using $\frac{3}{10}$ of the Legos out of each of the containers.

How many Legos did Walker use to build the city?

    a. 15
    b. 30
    c. 60
    d. 90

9. The doctors at a hospital need to see 128 patients today. If they have already seen $\frac{5}{8}$ of the patients, how many patients do they still need to see today?
    a. 80
    b. 75
    c. 48
    d. 90

$\frac{1}{8}$ of 128
16

$\frac{5}{8}$ of $128 =$
$16 \times 5 = 80$

$128 - 80 = 48$

OR $\frac{3}{8}$ of $128 = 48$

10. A textbook is $\frac{5}{6}$ of an inch thick. If 7 textbooks are stacked on top of each other, how tall is the stack of textbooks?
    a. 6 inches
    b. $7\frac{5}{6}$ inches
    c. 8 inches
    d. $5\frac{5}{6}$ inches

$\frac{5}{6} \times 7 = \frac{35}{6} = 5\frac{5}{6}$

$\frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} = \frac{35}{6}$