

Name _____

Period _____

Date _____

WHOLE NUMBER MULTIPLICATION AND DIVISION (NBT1)

Essentials Pre-Assessment **Answer Key**

1. Grace multiplied $7 \bullet 9$. Explain her strategy.

$$7(10) = 70 \rightarrow 7(1) = 7 \rightarrow 70 - 7 = 63 \rightarrow 7 \times 9 = 63$$

She multiplied 7 by 10 and 7 by 1, then subtracted the products. This illustrates the distributive property: $7(10 - 1) = 7(10) - 7(1)$

2. Find each product.

a. $6 \bullet 8$ 48	b. $60 \bullet 8$ 480	c. $60 \bullet 80$ 4,800	d. $80 \bullet 6$ 480
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3. Multiply $18(121)$ using an area model.

2,178

4. Divide 767 by 13 using the chunking method.

59

5. Compute each product using the standard algorithm.

a. 19×85 1,615	b. $5,670 \div 35$ 162
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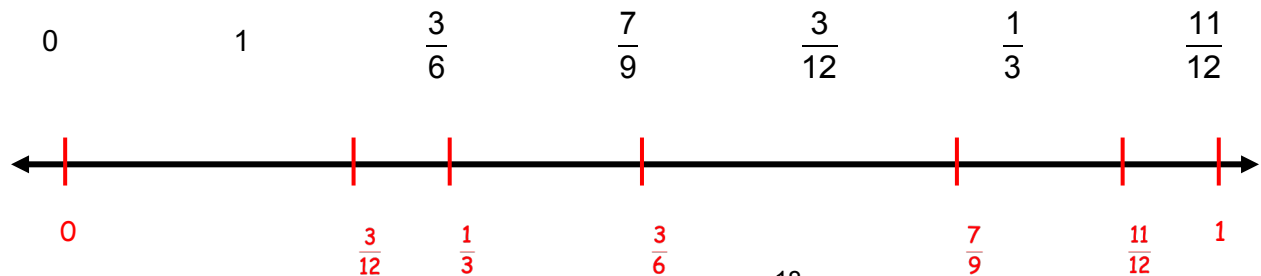
FRACTION CONCEPTS AND EQUIVALENCE (FR1)

Essentials Pre-Assessment **Answer Key**

6. Write inequalities to compare the unit fractions $\frac{1}{5}$, $\frac{1}{3}$, $\frac{1}{7}$, and $\frac{1}{8}$.

$$\frac{\boxed{1}}{\boxed{8}} < \frac{\boxed{1}}{\boxed{7}} < \frac{\boxed{1}}{\boxed{5}} < \frac{\boxed{1}}{\boxed{3}}$$

7. Estimate the location of each number below on the number line.



8. Choose ALL of the numbers that are equivalent to $\frac{18}{4}$.

A. $\frac{9}{2}$

B. $3\frac{3}{4}$

C. $4\frac{1}{4}$

D. $4\frac{1}{2}$

9. A number has a numerator of 12 and is equivalent to $\frac{2}{3}$. What is its denominator?

18

10. Explain how to use common denominators to compare $\frac{2}{7}$ and $\frac{1}{3}$.

A common denominator is 21. So the two fractions are equivalent to $\frac{6}{21}$ and $\frac{7}{21}$. $\frac{7}{21}$ is greater than $\frac{6}{21}$. Therefore, $\frac{1}{3}$ is greater than $\frac{2}{7}$.

11. Write each pair of fractions using a common denominator. Then circle the fraction in each pair with the greater value.

a. $\frac{3}{4}$ and $\frac{4}{5}$

$\frac{15}{20}$ and $\frac{16}{20}$

b. $\frac{4}{7}$ and $\frac{2}{3}$

$\frac{12}{21}$ and $\frac{14}{21}$

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FRACTION ADDITION AND SUBTRACTION (FR2)

Essentials Pre-Assessment **Answer Key**

12. Use mental math to find the sum.

a. $\frac{3}{12} + \frac{4}{12} + \frac{1}{12}$ $\frac{8}{12}$ or $\frac{2}{3}$	b. $1\frac{5}{6} + 2 + 8\frac{1}{6}$ 12
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13. Without calculating, estimate each sum or difference.

a. $3\frac{1}{7} + 2\frac{1}{11}$ Closer to 5 Closer to 6	b. $4\frac{4}{5} - 3\frac{1}{8}$ Closer to 1 Closer to 2
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14. Find the following differences.

a. $\frac{11}{12} - \frac{3}{4}$ $\frac{2}{12} = \frac{1}{6}$	b. $6\frac{2}{5} - 4\frac{2}{3}$ $1\frac{11}{15}$
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15. Find the following sums.

a. $\frac{5}{6} + \frac{1}{3}$ $\frac{7}{6} = 1\frac{1}{6}$	b. $4\frac{1}{4} + 2\frac{2}{3}$ $6\frac{11}{12}$
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16. Lucy is baking a cake that requires $4\frac{2}{3}$ cups of flour. She only has $2\frac{1}{4}$ cups of flour and wants to borrow some from her neighbor.

How much flour does she need from her neighbor?

$2\frac{5}{12}$ cups of flour.

17. Ignatius added these proper fractions this way: $\frac{3}{4} + \frac{3}{5} = \frac{6}{9}$.

a. Explain why his result of $\frac{6}{9}$ does not make sense. *One way: since $\frac{6}{9} = \frac{2}{3}$, and $\frac{2}{3}$ is less than $\frac{3}{4}$, this sum is too small. Another way: $\frac{3}{4}$ is only $\frac{1}{4}$ less than 1, and $\frac{3}{5}$ is greater than $\frac{1}{4}$. The sum must be greater than 1, but Ignatius' result is not.*

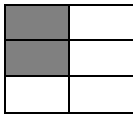
b. Find the correct sum. Show work. $\frac{3}{4} \cdot \frac{5}{5} + \frac{3}{5} \cdot \frac{4}{4} = \frac{15}{20} + \frac{12}{20} = \frac{27}{20}$ or $1\frac{7}{20}$

FRACTION MULTIPLICATION AND DIVISION (FR3)

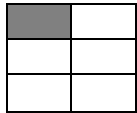
Essentials Pre-Assessment **Answer Key**

18. Ervin was trying to create an area model to compute $\frac{1}{2} \times \frac{1}{3}$. Which of the area models below could he use to answer the question? Choose ALL that apply.

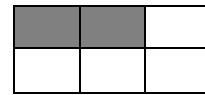
A.



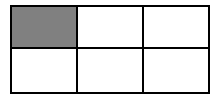
B.



C.



D.



19. Compute.

a. $\frac{3}{4} \left(\frac{5}{6} \right)$

$\frac{5}{8}$

b. $\frac{11}{12} \cdot 4$

$\frac{11}{3}$ or $3\frac{2}{3}$

c. $2 \cdot 1\frac{3}{5}$

$\frac{16}{5}$ or $3\frac{1}{5}$

d. $2\frac{2}{3} \left(1\frac{5}{8} \right)$

$\frac{13}{3}$ or $4\frac{1}{3}$

20. Six advisory classes want to split $7\frac{1}{2}$ pizzas equally. How much pizza will each advisory class get? Use a division procedure or diagram to justify your answer.

$1\frac{1}{4}$ pizzas

21. Compute using any method.

a. $\frac{5}{8} \div \frac{1}{4}$

$\frac{5}{2}$ or $2\frac{1}{2}$

b. $3\frac{1}{2} \div 2\frac{1}{3}$

$\frac{3}{2}$ or $1\frac{1}{2}$

22. Tyler notices that dividing a number by $\frac{1}{2}$ gives the same result as multiplying the number by 2. Critique Tyler's conjecture using supporting examples or counterexamples.

Explanations may vary. Tyler is correct. When you divide by one-half you are doubling the amount that you have.