Name _____ Date _____ Class _____

SKILL 17: Computing with Rational Numbers

What you have learned about opposites and absolute value of integers applies to rational numbers also. (The opposite of $\frac{2}{3}$ is $-\frac{2}{3}$, the absolute value of $-\frac{3}{4}$ is $\frac{3}{4}$, and so on.) This means that you can add, subtract, multiply, and divide rational numbers in much the same way you did integers.

Example 1

Add: $-\frac{3}{5} + \frac{1}{5}$.

Rewrite $-\frac{3}{5}$ as $\frac{-3}{5}$.

The denominators are the same. Add the numerators. $\frac{-3}{5} + \frac{1}{5} = \frac{-3+1}{5} = \frac{-2}{5}$

So, $-\frac{3}{5} + \frac{1}{5} = \frac{-2}{5}$ or $-\frac{2}{5}$.

Example 2

Multiply: $-\frac{2}{3} \cdot \left(-\frac{1}{5}\right)$.

Rewrite $-\frac{2}{3}$ as $\frac{-2}{3}$ and $-\frac{1}{5}$ as $\frac{-1}{5}$.

You are multiplying numbers with the same sign, so the answer will be positive.

Multiply the numerators. Multiply the denominators. $\frac{-2}{3} \cdot \frac{-1}{5} = \frac{-2 \cdot (-1)}{3 \cdot 5} = \frac{2}{15}$

So, $-\frac{2}{3} \cdot \left(-\frac{1}{5}\right) = \frac{2}{15}$.

Guided Practice

1. Subtract: $1.5 - (-12.9)$.

Change subtraction to addition, and add the *opposite* of _____.

$1.5 - (-12.9) = 1.5 +$ _____

$=$ _____

So, $1.5 - (-12.9) =$ _____.

2. Multiply: $7.5 \cdot (-9)$.

$7.5 \cdot 9 =$ _____

Since 7.5 and -9 have different signs, the final answer will be _____. (negative/positive)

So, $7.5 \cdot (-9) =$ _____.

3. Divide: $-1.5 \div 5$.

Since the numbers -1.5 and 5 have different signs, the answer is _____. (negative/positive)

$1.5 \div 5 =$ _____ So, $-1.5 \div 5 =$ _____.

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SKILL 17: Practice

Add or subtract. Write fractions in simplest form.

1. $8.3 + (-4.1) =$ _____
2. $6 - 9.2 =$ _____
3. $-7.69 - 14.8 =$ _____
4. $\frac{3}{5} + \frac{1}{5} =$ _____
5. $-\frac{15}{11} - \frac{7}{11} =$ _____
6. $-\frac{1}{8} + \frac{3}{8} =$ _____
7. $\frac{5}{12} - \frac{7}{12} =$ _____
8. $-\frac{11}{15} + \frac{7}{15} =$ _____
9. $-\frac{3}{4} - \left(-5\frac{3}{4}\right) =$ _____
10. $8\frac{1}{3} - 9\frac{2}{3} =$ _____
11. $4\frac{5}{6} - 2\frac{1}{6} =$ _____
12. $\frac{5}{12} \div \left(-7\frac{11}{12}\right) =$ _____

Multiply or divide. Write fractions in simplest form.

13. $9.16 \cdot (-0.2) =$ _____
14. $7.03 \cdot 0.04 =$ _____
15. $-0.1 \cdot (-4.1) =$ _____
16. $-8.64 \div 2 =$ _____
17. $90.5 \div (-5) =$ _____
18. $-6.4 \div (-0.8) =$ _____
19. $\frac{1}{2} \cdot (-4) =$ _____
20. $-\frac{2}{3} \cdot (-3) =$ _____
21. $-\frac{1}{2} \cdot \frac{3}{4} =$ _____
22. $1\frac{1}{2} \div (-8) =$ _____
23. $3\frac{1}{2} \div 7 =$ _____
24. $-7.5 \div 3 =$ _____
25. $-\frac{3}{8} \cdot \left(-\frac{5}{6}\right) =$ _____
26. $-\frac{3}{5} \div \left(-\frac{7}{8}\right) =$ _____
27. $\frac{4}{5} \cdot (-5) =$ _____

Solve.

28. The area of Colombia is about $1\frac{1}{4}$ times the area of Venezuela, which is about 352,000 square miles. What is the area of Colombia?

_____

29. Miguel bought some stock priced at $14\frac{3}{8}$ per share. Find the value of the stock after it went up $2\frac{3}{4}$.

_____

TEST PREP

30. Add: $\frac{-2}{3} + \frac{1}{3}$. *Skill 17*

A 1
C $-\frac{1}{3}$
B $\frac{1}{3}$
D -1

31. Which rational number is greater than $-\frac{3}{5}$? *Skill 16*

F $-\frac{16}{20}$
H $-\frac{9}{15}$
G $-\frac{10}{15}$
J $-\frac{2}{15}$