1-4 Multiply and Divide Real Numbers

Name _____ Date _____

Multiply: $-2\frac{3}{4} \bullet 1\frac{1}{3}$

$\left|-2\frac{3}{4}\right| \bullet \left|1\frac{1}{3}\right| = \frac{11}{4} \bullet \frac{4}{3}$ ← Multiply the absolute values of the numbers and rename each factor.

$= \frac{11 \bullet \overset{1}{\cancel{4}}}{\underset{1}{\cancel{4}} \bullet 3} = \frac{11}{3}$ ← Divide by the GCF to simplify. Then multiply the numerators and denominators.

$= 3\frac{2}{3}$ ← Rename the product as a mixed number.

So $-2\frac{3}{4} \bullet 1\frac{1}{3} = -3\frac{2}{3}$ ← Factors have *unlike* signs. The product is negative.

Remember: When multiplying decimals, multiply as you would whole numbers and use the total number of decimal places in the factors for the number of decimal places in the product.

Find the quotient: $\frac{-0.144}{-1.2}$

$|-0.144| \div |-1.2|$ ← Divide the absolute values of the numbers.

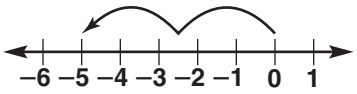
$1.2.\overline{)0.1.44} \rightarrow 12\overline{)1.44}$ ← Multiply by 10 to make the divisor a whole number. Move each decimal point 1 place to the right.

So $-0.144 \div (-1.2) = 0.12$ ← Dividend and divisor have *like signs*, so the quotient is positive.

Remember: When dividing fractions $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \bullet \frac{d}{c}$, $b, c, d \neq 0$.

Use a number line to model multiplication. Then find the product.

1. $2 \bullet (-2.5)$



2 • (−2.5) = −5

2. $8 \bullet 1.1$

_____

3. $4 \bullet (-3.5)$

_____

4. $5 \bullet 3\frac{1}{3}$

_____

5. $-6 \bullet \left(-2\frac{3}{4}\right)$

_____

6. $-12 \bullet \left(-1\frac{1}{4}\right)$

_____

Multiply or divide. Show your work. (*Hint:* watch for like signs)

7. $-8 \bullet (-12)$

$|-8| \bullet |-12| = 96$
96

8. $-2.7 \bullet (1.3)$

9. $-9.21 \bullet 0.4$

10. $-7.9 \bullet (-0.8)$

11. $1.56 \div (-0.3)$

12. $19.95 \div (-0.7)$

13. $-\frac{2}{5} \bullet \left(-\frac{1}{7}\right)$

14. $-\frac{3}{11} \bullet \left(-\frac{3}{8}\right)$

15. $-2\frac{1}{3} \bullet 3\frac{1}{4}$

16. $1\frac{1}{5} \bullet \left(-1\frac{1}{2}\right)$

17. $-\frac{2}{3} \div \left(-\frac{1}{4}\right)$

18. $-\frac{3}{5} \div \left(-\frac{7}{10}\right)$

19. $2\frac{1}{2} \div 1\frac{1}{3}$

20. $-4\frac{1}{4} \div 5\frac{1}{3}$

21. $-3\frac{3}{4} \div \left(-2\frac{1}{2}\right)$

22. $5\frac{1}{8} \div \left(-7\frac{3}{4}\right)$

23. $-3\frac{1}{5} \div -6.5$

24. $-2\frac{1}{6} \div 0.3$

25. $-4.2 \div \left(-1\frac{7}{8}\right)$

26. $5.25 \div \left(-3\frac{1}{4}\right)$

Problem Solving

27. During a trading day, Company A stock lost 0.05 times its morning price of $34.80 per share. Company B stock gained 0.06 times its morning price of $31.50 per share. Which stock price was greater at the end of the day? How much greater?

28. Jonas is trying to understand why the product of two negative numbers equals a positive number. Find the answer to each product below and give the rule for the pattern.

$(3) \bullet (-1) =$ _____ ; $(2) \bullet (-1) =$ _____ ;

$(1) \bullet (-1) =$ _____ ; $(0) \bullet (-1) =$ _____ ;

$(-1) \bullet (-1) =$ _____ ; $(-2) \bullet (-1) =$ _____

MENTAL MATH

Use mental math to simplify each expression.

29. $-30 \bullet (-28)$

30. $-55(-15)$

31. $-12 \bullet (40)$

32. $18 \bullet (-50)$