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11-4 Multiplying Integers - Practice and Problem Solving

Multiply.

9. $9 \times (-1)$

$9 \times (-1) = -9$

11. $2(-10)$

$2(-10) = -20$

13. -2×9

$-2 \times 9 = -18$

15. $-6(9)$

$-6(9) = -54$

17. $9(4)$

$9(4) = 36$

19. $-9 \times (-7)$

$-9 \times (-7) = 63$

21. 9×5

$9 \times 5 = 45$

23. $-1(-9)$

$-1(-9) = 9$

25. **SUBMARINES** A submarine descends from the surface of the water at the rate of 220 feet per minute. What integer represents the change in the submarine's location related to the surface of the water after 40 minutes?

$-220 \times 40 = -8,800$ ft

27. **ALGEBRA** Find the value of ab if $a = -12$ and $b = -5$.

$ab = -12(-5)$

$= 60$

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PATTERNS Find the next two numbers in the pattern. Then describe the pattern.

29. –2, –6, –18, –54, …

$-54 \times 3 = -162$ and $-162 \times 3 = -486$; Each term is multiplied by 3.

Multiply.

31. –2(3)(–4)

$$-2(3)(-4) = -6(-4)$$
$$= 24$$

33. WEATHER On Wednesday morning, the temperature dropped 4°F every hour for 5 hours. If the temperature was 11°F before it started dropping, what was the temperature after 5 hours?

To find the drop in temperature multiply 4 and 5.
$4 \times 5 = 20$
Now subtract 20 from 11 to find the temperature after 5 hours.
$11 - 20 = -9$
The temperature is –9°F.

35. OPEN ENDED Write three different pairs of integers that each have the product of –18.

Sample answer: –6 and 3, 9 and –2, and –18 and 1

REASONING Decide whether each statement is true or false for any positive integers *a* and *c* and any negative integers *b* and *d*. Explain.

37. $a \times d$ is negative

false; Sample answer: The product of any two negative integers is always positive.

39. $b \times c$ is negative

true; Sample answer: The product of a positive integer and a negative integer is always negative.

41. WRITING IN MATH Write a problem about a real-world situation in which you would multiply integers.

Sample answer: Mr. Morris wrote three checks for $25. Write an integer to represent the amount of money he has in his checking account after writing the three checks.

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43. Which of the following expressions has a product of –36?
F $-4 \times (-9)$
G 4×9
H $-12 \times (-3)$
J $3 \times (-12)$

$$-4 \times (-9) = 36$$
$$4 \times 9 = 36$$
$$-12 \times (-3) = 36$$
$$3 \times (-12) = -36$$

The answer is J.

Subtract. Use counters if necessary.

45. $+3 - 1$

$$+3 - 1 = +3 + (-1)$$
$$= +2 \text{ or } 2$$

47. $-7 - 6$

$$-7 - 6 = -7 + (-6)$$
$$= -13$$

Add. Use counters or a number line if necessary.

49. $+4 + (-3)$

$+4 + (-3) = 1$

51. $7 + (-8)$

$7 + (-8) = -1$

53. How many meters are in 82 centimeters?

100 cm = 1 m

So 82 cm equals $\frac{82}{100}$ or 0.82 m.

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55. **PREREQUISITE SKILL** Parker has a piece of ribbon measuring $8\frac{3}{4}$ yards. How many pieces of ribbon each measuring $1\frac{3}{4}$ yards can be cut from the large piece of ribbon? Use the *act it out* strategy.

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

$1\frac{3}{4} \times 2 = \frac{7}{4} \times 2$

$= \frac{7}{2}$ or $3\frac{1}{2}$

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

$= \frac{21}{4}$ or $5\frac{1}{4}$

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

$1\frac{3}{4} \times 5 = \frac{7}{4} \times 5$

$= \frac{35}{4}$ or $8\frac{3}{4}$

5 pieces of ribbon can be cut from the given piece.