

Lesson 11

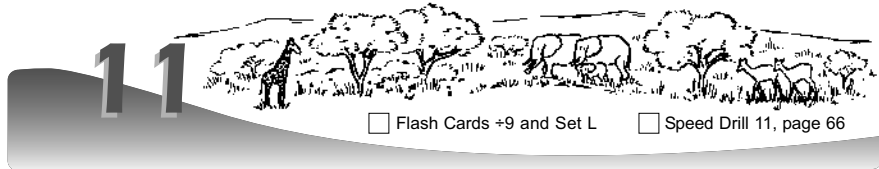
pp. 38-41

Lesson Preparation

- $\div 9$ AND L FLASH CARDS

Drill

- Do $\div 9$ AND L FLASH CARDS.
- Do Speed Drill 11 and mark the speed drill record.



Multiplying Three-Digit Numbers by Three-Digit Numbers

Follow the steps to multiply 738 by 426. Remember to keep all digits in the correct column.

Step 1

Multiply 738 by 6 ones.

$$\begin{array}{r} \overset{2}{7} \overset{4}{3} \overset{1}{8} \\ \times \quad \overset{1}{4} \overset{2}{2} \overset{6}{6} \\ \hline \underset{1}{4} \underset{2}{4} \underset{2}{8} \end{array}$$

Step 2

Write a 0 to hold the ones place. Multiply by 2 tens.

$$\begin{array}{r} \overset{1}{7} \overset{3}{3} \overset{8}{8} \\ \times \quad \overset{2}{4} \overset{2}{2} \overset{6}{6} \\ \hline \underset{1}{4} \underset{2}{4} \underset{2}{8} \\ \underset{1}{1} \underset{4}{4} \underset{7}{7} \underset{6}{6} \underset{0}{0} \end{array}$$

Step 3

Write two zeros to hold both the ones and tens places. Multiply by 4 hundreds.

$$\begin{array}{r} \overset{1}{7} \overset{3}{3} \overset{8}{8} \\ \times \quad \overset{4}{4} \overset{2}{2} \overset{6}{6} \\ \hline \underset{1}{4} \underset{2}{4} \underset{2}{8} \\ \underset{1}{1} \underset{4}{4} \underset{7}{7} \underset{6}{6} \underset{0}{0} \\ \underset{2}{2} \underset{9}{9} \underset{5}{5} \underset{2}{2} \underset{0}{0} \underset{0}{0} \end{array}$$

Step 4

Add to get the final answer. Remember to include the comma.

$$\begin{array}{r} \overset{1}{7} \overset{3}{3} \overset{8}{8} \\ \times \quad \overset{4}{4} \overset{2}{2} \overset{6}{6} \\ \hline \underset{1}{4} \underset{2}{4} \underset{2}{8} \\ \underset{1}{1} \underset{4}{4} \underset{7}{7} \underset{6}{6} \underset{0}{0} \\ + \underset{2}{2} \underset{9}{9} \underset{5}{5} \underset{2}{2} \underset{0}{0} \underset{0}{0} \\ \hline \underset{3}{3} \underset{1}{1} \underset{4}{4} \underset{3}{3} \underset{8}{8} \underset{8}{8} \end{array}$$

Solve.

1. a.
$$\begin{array}{r} \overset{2}{2} \overset{3}{3} \\ \overset{1}{1} \overset{5}{5} \overset{8}{8} \\ \times \quad \overset{1}{1} \overset{4}{4} \overset{7}{7} \\ \hline \underset{1}{1} \underset{8}{8} \underset{0}{0} \underset{6}{6} \\ \underset{1}{1} \underset{0}{0} \underset{3}{3} \underset{2}{2} \underset{0}{0} \\ + \underset{2}{2} \underset{5}{5} \underset{8}{8} \underset{0}{0} \underset{0}{0} \\ \hline \underset{3}{3} \underset{7}{7} \underset{9}{9} \underset{2}{2} \underset{6}{6} \end{array}$$

b.
$$\begin{array}{r} \overset{1}{1} \\ \overset{2}{2} \overset{1}{1} \\ \overset{3}{3} \overset{4}{4} \overset{2}{2} \\ \times \quad \overset{1}{1} \overset{3}{3} \overset{5}{5} \\ \hline \underset{1}{1} \underset{7}{7} \underset{1}{1} \underset{0}{0} \\ \underset{1}{1} \underset{0}{0} \underset{2}{2} \underset{6}{6} \underset{0}{0} \\ + \underset{3}{3} \underset{4}{4} \underset{2}{2} \underset{0}{0} \underset{0}{0} \\ \hline \underset{4}{4} \underset{6}{6} \underset{1}{1} \underset{7}{7} \underset{0}{0} \end{array}$$

c.
$$\begin{array}{r} \overset{7}{7} \overset{3}{3} \\ \overset{2}{2} \overset{8}{8} \overset{4}{4} \\ \times \quad \overset{9}{9} \overset{5}{5} \overset{1}{1} \\ \hline \underset{1}{1} \underset{1}{1} \underset{2}{2} \underset{8}{8} \underset{4}{4} \\ \underset{1}{1} \underset{4}{4} \underset{2}{2} \underset{0}{0} \underset{0}{0} \\ + \underset{2}{2} \underset{5}{5} \underset{5}{5} \underset{6}{6} \underset{0}{0} \underset{0}{0} \\ \hline \underset{2}{2} \underset{7}{7} \underset{0}{0} \underset{0}{0} \underset{8}{8} \underset{4}{4} \end{array}$$

d.
$$\begin{array}{r} \overset{1}{1} \\ \overset{7}{7} \overset{0}{0} \overset{3}{3} \\ \times \quad \overset{5}{5} \overset{1}{1} \overset{7}{7} \\ \hline \underset{4}{4} \underset{9}{9} \underset{2}{2} \underset{1}{1} \\ \underset{1}{1} \underset{7}{7} \underset{0}{0} \underset{3}{3} \underset{0}{0} \\ + \underset{3}{3} \underset{5}{5} \underset{1}{1} \underset{5}{5} \underset{0}{0} \underset{0}{0} \\ \hline \underset{3}{3} \underset{6}{6} \underset{3}{3} \underset{4}{4} \underset{5}{5} \underset{1}{1} \end{array}$$

Teaching the Lesson


Multiplying Three-Digit Numbers by Three-Digit Numbers

Stress that keeping numbers lined up and in their proper places becomes even more important when using three-digit numbers.

Board Work

→
$$\begin{array}{r} \overset{5}{5} \overset{9}{9} \overset{3}{3} \\ \times \quad \overset{6}{6} \overset{4}{4} \overset{1}{1} \\ \hline \underset{(}{(} \underset{5}{5} \underset{9}{9} \underset{3}{3} \underset{)}{)} \\ \underset{(}{(} \underset{2}{2} \underset{3}{3} \underset{7}{7} \underset{2}{2} \underset{0}{0} \underset{)}{)} \\ \underset{(}{(} \underset{3}{3} \underset{5}{5} \underset{5}{5} \underset{8}{8} \underset{0}{0} \underset{0}{0} \underset{)}{)} \\ \hline \underset{3}{3} \underset{8}{8} \underset{0}{0} \underset{1}{1} \underset{1}{1} \underset{3}{3} \end{array}$$

$$\begin{array}{r} \overset{8}{8} \overset{0}{0} \overset{2}{2} \\ \times \quad \overset{3}{3} \overset{9}{9} \overset{7}{7} \\ \hline \underset{(}{(} \underset{5}{5} \underset{6}{6} \underset{1}{1} \underset{4}{4} \underset{)}{)} \\ \underset{(}{(} \underset{7}{7} \underset{2}{2} \underset{1}{1} \underset{8}{8} \underset{0}{0} \underset{)}{)} \\ \underset{(}{(} \underset{2}{2} \underset{4}{4} \underset{0}{0} \underset{6}{6} \underset{0}{0} \underset{0}{0} \underset{)}{)} \\ \hline \underset{3}{3} \underset{1}{1} \underset{8}{8} \underset{3}{3} \underset{9}{9} \underset{4}{4} \end{array}$$

 **We Remember**

Underline the correct word.

2. If Evangel is as tall as her friend Gertrude, and Gertrude is taller than her brother Peter, then Evangel is taller, shorter than Peter.

Write the products.

11	11	11	11	11	11	11	11	11	11
× 3	× 7	× 2	× 6	× 10	× 4	× 9	× 5	× 11	× 8
33	77	22	66	110	44	99	55	121	88

Estimate.

4. Timmy enjoyed watching for giraffes as his family drove across South Africa. He knows that giraffes have big appetites. An adult giraffe can eat 75 pounds or 34 kilograms of leaves in a day. Estimate how many pounds of leaves a herd of 18 giraffes would eat in a day.

80 × 20 = 1,600 pounds

5. Estimate how many kilograms of leaves 18 giraffes would eat in one day.

30 × 20 = 600 kilograms

Complete the analogies.

6. Fast : slow :: tall : short

b. 0.1 : $\frac{1}{10}$:: 0.6 : $\frac{6}{10}$

Write = or ≠.

7. a. If a = 11, and b = 11, then a b.

b. If s = t, and t = u, then s u.

Round to the nearest ten.

8. a. 496 500

b. 3,594 3,590

Round to the nearest hundred.

9. a. 6,972 7,000

b. 495 500

Tips for Struggling Students

➔ If students have problems with accuracy, encourage them to draw vertical lines to separate their columns as they work the multiplication problems.

Helpful Hints

➔ Stress the need to work accurately. This sort of problem has many steps and much potential for errors.

Teacher Notes:

Lesson 11

10.7 Brother David often preaches in Pollsmoor Prison in South Africa. There are 45 prisoners, ranging in age from 13 to 22, in each cell. One section has 32 cells. How many prisoners are in that section of the prison?



1,440 prisoners

My Work Space

$$\begin{array}{r} 1 \\ \cancel{1} \\ 45 \\ \times 32 \\ \hline 90 \\ + 1350 \\ \hline 1,440 \end{array}$$

11.7 Brother David wrote a tract to give out to the men in prison. He made 200 copies of the tract. He has given out 125 copies. How many copies are left?

75 copies

My Work Space

$$\begin{array}{r} 190 \\ \cancel{200} \\ - 125 \\ \hline 75 \end{array}$$

12.7 What fraction of the tracts has been given out? Reduce the fraction to simplest form.

$\frac{5}{8}$ of the tracts have been given out.

My Work Space

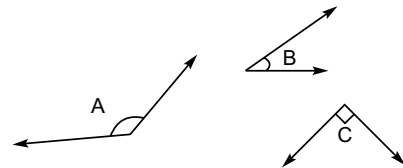
$$\frac{125}{200} = \frac{25}{40} = \frac{5}{8}$$

Classify each angle as *right*, *obtuse*, or *acute*.

13. Angle C is a right angle.

14. Angle B is an acute angle.

15. Angle A is an obtuse angle.



Use the graph on page iv. Underline the correct choice.

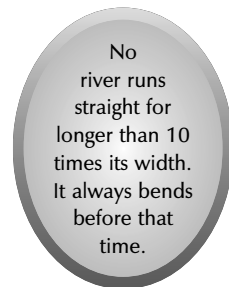
16. An elephant's ears weigh less than 100 pounds, more than 400 pounds, more than 200 pounds.

Write the first six multiples of 16.

17. 16 32 48 64 80 96

Write the ratio for 4 ostrich eggs to 6 chicken eggs.

18. 4:6



Teacher Notes:

Lesson 11

19. A building in Cape Town needs a fresh coat of paint. One side measures 50 feet by 27 feet. What is the area?

1,350 ft²

My Work Space

$$\begin{array}{r} 50 \\ \times 27 \\ \hline 350 \\ 1000 \\ \hline 1,350 \end{array}$$

Write number sentences to find the areas. Answer the question.

20. A small storage shed nearby will be painted also. One side measures 9 feet by 9 feet. What is the area? 9 × 9 = 81 ft²

21. On a farm just outside of town chickens scratch in the dirt in their triangle-shaped pen. The triangle has a base of 4 meters and a height of 3 meters. What is the area of the pen?
4 × 3 = 12 12 ÷ 2 = 6 m²

22. What is the ratio of the base to the height? 4:3



Answer the question.

23. What is the temperature if it is -25° and rises 30°? 5°

Skill Builders $\frac{+}{-}$ $\frac{-}{\div}$ \times Write remainders as fractions. Write fraction answers in simplest form.

<p>24. a. $\begin{array}{r} 24 \\ 47 \\ \times 592 \\ \hline 148 \\ 296 \\ 13320 \\ + 74000 \\ \hline 87616 \end{array}$</p>	<p>b. $\begin{array}{r} 32 \\ 260 \\ \times 604 \\ \hline 1040 \\ 0000 \\ + 156000 \\ \hline 157040 \end{array}$</p>	<p>c. $\begin{array}{r} 51 \\ 471 \\ \times 826 \\ \hline 2226 \\ 117420 \\ + 296800 \\ \hline 306446 \end{array}$</p>	<p>d. $\frac{18}{632} + \frac{1}{232} = \frac{19}{832}$</p>	<p>e. $8\frac{7}{5} - 3\frac{4}{5} = 5\frac{3}{5}$</p>
<p>25. a. $1\frac{8}{8} - \frac{7}{8} = \frac{1}{8}$</p>	<p>b. $\begin{array}{r} 12 \\ 245 \\ \times 24 \\ \hline 980 \\ 4900 \\ \hline 5880 \end{array}$</p>	<p>c. $\begin{array}{r} 910 \\ 10106 \\ - 42.08 \\ \hline 58.98 \end{array}$</p>	<p>d. $8 \overline{)638} = 79\frac{6}{8} = 79\frac{3}{4}$</p>	<p>e. $4 \overline{)97} = 24\frac{1}{4}$</p>

Teacher Notes:

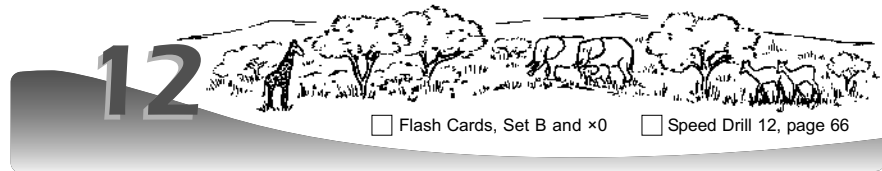
Lesson 12 pp. 42-45

Lesson Preparation

- B AND X0 FLASH CARDS

Drill

- Do B AND X0 FLASH CARDS.
- Do Speed Drill 12 and mark the speed drill record.



Comparing Numbers Across Zero

To compare numbers across zero you must picture where they belong on a number line.



When comparing two numbers, the number to the left on the number line is always smaller than the one to the right.

Compare -8 and -4.

Find -8 on the number line. Now find -4. -8 is to the left of -4.

$-8 < -4$
because -8 is to the left of -4.

Compare 2 and -5.

$2 > -5$
because 2 is to the right of -5.

Write $<$ or $>$.

1. a. $-3 > -9$ b. $-6 < 2$ c. $-19 > -25$ d. $-21 < 18$
 2. a. $-15 < 11$ b. $-8 < -4$ c. $11 < 27$ d. $-4 > -13$

We Remember

Round to the nearest whole number.

3. a. $42.8 \underline{43}$ b. $1.4 \underline{1}$ c. $73.5 \underline{74}$ d. $9.3 \underline{9}$

Write the numbers.

4. The boiling point of water is $\underline{212}^\circ$ F or $\underline{100}^\circ$ C.
 5. One gross is $\underline{144}$ things or $\underline{12}$ dozen.

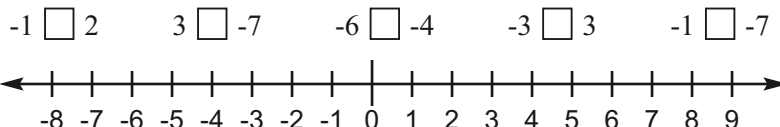
Teaching the Lesson

Comparing Numbers Across Zero

Zero is the middle of the number line. Any number to the right of zero will be larger than zero, and any number to the left of zero will be smaller than zero. The same applies to any two numbers. Whichever number is farthest to the right on the number line will be larger than the one to the left.

Board Work

→ $<$ or $>$?



Lesson 12

Skill Builders $+$ $-$ \times \div

$\begin{array}{r} 52 \\ 1384 \\ \times 602 \\ \hline 768 \\ 0000 \\ 230400 \\ \hline 231,168 \end{array}$	$\begin{array}{r} 26 \\ 13529 \\ \times 741 \\ \hline 529 \\ 21160 \\ 370300 \\ \hline 391,989 \end{array}$	$\begin{array}{r} 13 \\ 5.17 \\ \times 395 \\ \hline 2585 \\ 46530 \\ 155100 \\ \hline \$2,042.15 \end{array}$	$\begin{array}{r} 1 \\ 86 \\ \times 24 \\ \hline 344 \\ 1720 \\ \hline 2,064 \end{array}$
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$\begin{array}{r} 53R1 \\ 9 \overline{)478} \\ \underline{45} \\ 28 \\ \underline{27} \\ 1 \end{array}$	$\begin{array}{r} 76 \\ 6 \overline{)456} \\ \underline{42} \\ 36 \\ \underline{36} \\ 0 \end{array}$	$\begin{array}{r} 13R1 \\ 7 \overline{)92} \\ \underline{7} \\ 22 \\ \underline{21} \\ 1 \end{array}$	$\begin{array}{r} 9R3 \\ 4 \overline{)39} \\ \underline{36} \\ 3 \end{array}$
--	--	--	--

$\begin{array}{r} 1 \\ 6 \\ + 3\frac{5}{6} \\ \hline 3\frac{6}{6} = 4 \end{array}$	$\begin{array}{r} 5 \\ 76 \\ \times 9 \\ \hline 684 \end{array}$	$\begin{array}{r} 8 \\ 69 \\ \times 90 \\ \hline 6,210 \end{array}$	$\begin{array}{r} 4 \\ 96 \\ \times 80 \\ \hline 7,680 \end{array}$
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Write the common factors from 2-10.



9. a. for 40 and 50 2, 5, 10 b. for 32 and 42 2

Write the missing numerator.

10. a. $\frac{7}{8} = \frac{42}{48}$ b. $\frac{2}{3} = \frac{24}{36}$ c. $\frac{6}{9} = \frac{18}{27}$ d. $\frac{5}{7} = \frac{10}{14}$

Round to the nearest ten.

11. a. 432 430 b. 1,967 1,970 c. 838 840

Measure the line segment to the quarter-inch.

12. $3\frac{1}{4}$ in _____

Teacher Notes:

Lesson 12

Solve mentally.

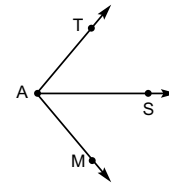
- 13. 70 crates of apples with 300 pounds each = 21,000 pounds
- 14. 50 boxes of oranges with 100 in each = 5,000 oranges
- 15. 30 crates of potatoes with 20 bags in each = 600 bags of potatoes
- 16. 80 bushels of corn with 30 ears per bushel = 2,400 ears of corn
- 17. 100 cases of eggs with 1,500 eggs per case = 150,000 eggs

Write the numbers.

- 18. Forty-two million, two hundred eight thousand, five hundred fifty-two 42,208,552
- 19. One hundred twenty-six million, three hundred thousand 126,300,000

Name the rays.

20. AT AS AM



Complete the function chart.

21.

yards	1	5	10	2	8	6	9
feet	3	15	30	6	24	18	27

Multiply by 5 to make equal fractions.

22. a. $\frac{2}{5} = \frac{10}{25}$ b. $\frac{4}{9} = \frac{20}{45}$ c. $\frac{1}{2} = \frac{5}{10}$ d. $\frac{4}{5} = \frac{20}{25}$

Mental Math . . . ?

23. a. $7,000 \times 90 = \underline{630,000}$ b. $600 \times 500 = \underline{300,000}$ c. $49 + 27 = \underline{76}$
24. a. $23.2 \times 10 = \underline{232}$ b. $0.232 \times 1,000 = \underline{232}$ c. $2.32 \times 100 = \underline{232}$

25.

Teacher Notes:

Lesson 12

26.7 Evangel's mother often buys ostrich meat instead of mince (hamburger) because it is less expensive. One day she bought $\frac{9}{10}$ of a kilogram of ostrich meat and $\frac{4}{10}$ of a kilogram of mince. How many kilograms of meat did she buy? Remember to change your improper fraction to a mixed number.

1 $\frac{3}{10}$ kilograms

My Work Space

$$\begin{array}{r} \frac{9}{10} \\ + \frac{4}{10} \\ \hline \frac{13}{10} = 1\frac{3}{10} \end{array}$$

27.7 Change the fractions above to decimals. Then use decimals to figure again how many kilograms of meat she bought. For example, $\frac{9}{10} = 0.9$

1.3 kilograms

My Work Space

$$\begin{array}{r} 1 \\ 0.9 \\ + 0.4 \\ \hline 1.3 \end{array}$$

28.7 The ostrich was 2.4 m tall. The giraffe was 2.9 m taller. How tall was the giraffe?

5.3 meters



My Work Space

$$\begin{array}{r} 1 \\ 2.4 \\ + 2.9 \\ \hline 5.3 \end{array}$$

29.7 What is the ratio of the height of the giraffe to the height of the ostrich? 5.3:2.4

Change these mixed numbers to improper fractions.

30. a. $3\frac{4}{8} = \frac{28}{8}$ b. $6\frac{2}{3} = \frac{20}{3}$ c. $9\frac{1}{4} = \frac{37}{4}$ d. $2\frac{5}{6} = \frac{17}{6}$

Find the area.

31. The children have their own little garden beside the family garden. It measures 4 ft by 4 ft. What is the area of their garden? 16 ft²



Write < or >.

32. a. -16 -9 b. 22 -15 c. 18 -21 d. 24 17

Teacher Notes:
