

Name _____

Week 9 Homework

due WEDNESDAY

10/16/19



ODDS ONLY!



Homework & Practice 3-4

Mental Math Strategies for Multiplication

Another Look!

Use mental math to calculate $4 \times 4,002$ and 8×60 .

You can break numbers apart, use properties of operations, or use compensation to multiply mentally.



Use compensation to find $4 \times 4,002$.

4,000 is close to 4,002.

$$4 \times 4,000 = 16,000$$

$$4,000 + 2 = 4,002 \quad 4 \times 2 = 8$$

$$16,000 + 8 = 16,008$$

Use properties of operations to find 8×60 .

$$8 \times 60 = (4 \times 2) \times 60$$

$$= 4 \times (2 \times 60)$$

$$= 4 \times 120$$

$$= 480$$

For 1-18, use mental math to find each product.

1. $5 \times 395 = 5 \times (\underline{\quad} - \underline{\quad})$
 $= (5 \times \underline{\quad}) - (5 \times \underline{\quad})$
 $= \underline{\quad} - \underline{\quad}$
 $= \underline{\quad}$

2. ~~$7 \times 312 = 7 \times (\underline{\quad} + \underline{\quad})$
 $= (7 \times \underline{\quad}) + (7 \times \underline{\quad})$
 $= \underline{\quad} + \underline{\quad}$
 $= \underline{\quad}$~~

3. 9×898

~~4. 2×144~~

5. 4×408

~~6. 8×15~~

7. 36×9

~~8. 3×496~~

9. 4×509

~~10. $3,004 \times 6$~~

11. 6×198

~~12. 5×999~~

13. 8×250

~~14. 4×525~~

15. 6×28

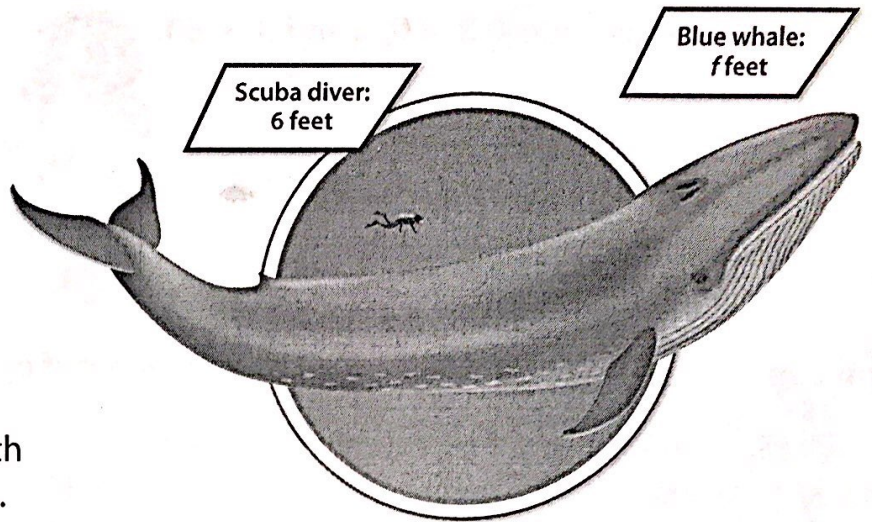
~~16. 7×156~~

17. $9 \times 1,276$

~~18. $3 \times 1,607$~~

For 19–20, use the picture at the right.

19. © MP.2 Reasoning The longest blue whale on record was about 18 scuba divers in length. Use breaking apart to estimate the length of the blue whale.



- ~~20. Explain how to estimate the length of the whale using compensation.~~

21. In an election, 589,067 people voted. Write 589,067 in expanded form and using number names.

- ~~22. Higher Order Thinking Davidson's Bakery bakes 108 cookies and 96 muffins every hour. How many baked goods are baked in 4 hours? Use mental math to solve.~~

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23. Which of the following expressions shows how to use mental math to find the product of 8×490 ? Select all that apply.

- $8 + (400 \times 90)$
- $(8 \times 400) + (8 \times 90)$
- $(8 \times 400) + (8 \times 9)$
- $(8 \times 500) - (8 \times 10)$
- $8 \times (500 \times 10)$

- ~~24. Which of the following expressions shows how to use mental math to find the product of $4 \times 2,025$? Select all that apply.~~

- $4 \times (2,000 + 20 + 5)$
- $(4 \times 2,000) + 25$
- $(4 \times 2,000) + (4 \times 25)$
- $4 \times (2,000 + 25)$
- $(4 \times 2,000 \times 25)$

Homework & Practice 3-5

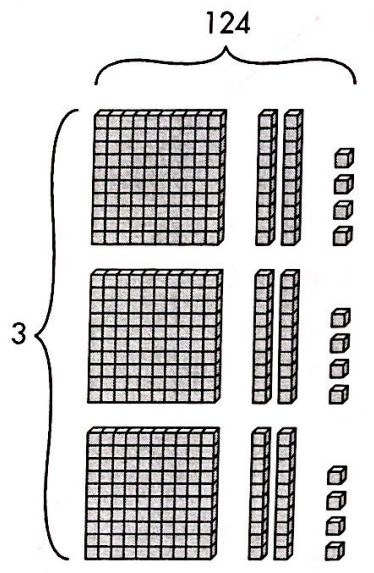
Arrays and Partial Products

Another Look!

You can use place value, arrays, and properties of operations to help multiply.



Find 3×124 .



$$\begin{aligned}
 3 \times 124 &= 3 \times (100 + 20 + 4) \\
 &= (3 \times 100) + (3 \times 20) + (3 \times 4) \\
 &= 300 + 60 + 12 \\
 &= 372
 \end{aligned}$$

$$\begin{array}{r}
 124 \\
 \times 3 \\
 \hline
 12 \quad 3 \times 4 \text{ ones} \\
 60 \quad 3 \times 2 \text{ tens} \\
 + 300 \quad 3 \times 1 \text{ hundred} \\
 \hline
 372
 \end{array}$$

The partial products are modeled by the drawing.



For 1–8, complete each calculation. Use place-value blocks or draw arrays as needed.

1.
$$\begin{array}{r}
 218 \\
 \times 4 \\
 \hline
 \\
 + \\
 \hline
 \end{array}$$

2.
$$\begin{array}{r}
 411 \\
 \times 2 \\
 \hline
 \\
 + \\
 \hline
 \end{array}$$

3.
$$\begin{array}{r}
 223 \\
 \times 5 \\
 \hline
 \\
 + \\
 \hline
 \end{array}$$

4.
$$\begin{array}{r}
 316 \\
 \times 3 \\
 \hline
 \\
 + \\
 \hline
 \end{array}$$

5.
$$\begin{array}{r}
 1,178 \\
 \times 5 \\
 \hline
 \end{array}$$

6.
$$\begin{array}{r}
 2,148 \\
 \times 3 \\
 \hline
 \end{array}$$

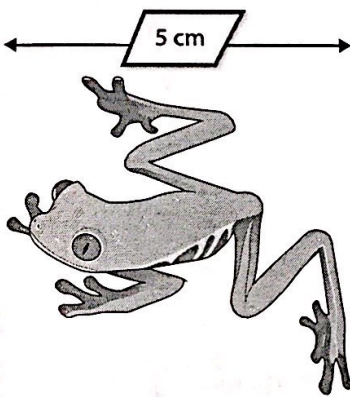
7.
$$\begin{array}{r}
 1,116 \\
 \times 2 \\
 \hline
 \end{array}$$

8.
$$\begin{array}{r}
 2,136 \\
 \times 4 \\
 \hline
 \end{array}$$

9. James was able to correctly name 11 major highways, 4 mountains, 86 major cities, and 9 bodies of water on a map. How many places on the map did James identify? Explain how you can use compatible numbers to help calculate the sum.

10. © MP.5 Use Appropriate Tools Show how you can use place-value blocks or draw an array to find the partial products for 4×125 .

11. A red tree frog can jump up to 150 times its body length. How far can this tree frog jump?



12. Higher Order Thinking Tony says to multiply 219×3 , you multiply 2×3 , 1×3 , and 9×3 , then add the products. Explain Tony's error. How would you help Tony understand how to correctly multiply 219×3 ?

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13. Complete the calculation using the numbers from the box. Use each number once.

$$\begin{array}{r}
 2, 4 8 1 \\
 \times \quad 6 \\
 \hline
 \square \\
 \square 8 0 \\
 \square, 4 0 0 \\
 1 2, 0 0 \square \\
 \hline
 \square 4, \square 8 6
 \end{array}$$

0	1
2	4
6	8

14. Complete the calculation using the numbers from the box. Use each number once.

$$\begin{array}{r}
 3, 0 4 9 \\
 \times \quad 6 \\
 \hline
 \square 4 \\
 2 \square 0 \\
 \square 0 \\
 1 \square, 0 0 0 \\
 \hline
 \square 8, \square \square 4
 \end{array}$$

1	2
4	5
8	9

Homework & Practice 3-6

Use Partial Products to Multiply by 1-Digit Numbers

Another Look!

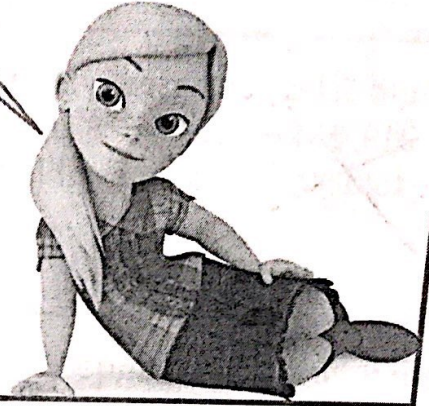
Three groups of 145 students attended the play.
How many students attended the play?

Find 3×145 .

Record the partial products.

$$\begin{array}{r}
 145 \\
 \times 3 \\
 \hline
 15 \quad 3 \times 5 \\
 120 \quad 3 \times 40 \\
 + 300 \quad 3 \times 100 \\
 \hline
 435
 \end{array}$$

You can use an algorithm to record the partial products when multiplying.



435 students attended the play.

For 1-16, find each product using an algorithm. Draw pictures, use arrays, or area models if needed. Check if your answer is reasonable.

1.
$$\begin{array}{r} 275 \\ \times 6 \\ \hline \end{array}$$

2. ~~$$\begin{array}{r} 164 \\ \times 5 \\ \hline \end{array}$$~~

3.
$$\begin{array}{r} 317 \\ \times 9 \\ \hline \end{array}$$

4. ~~$$\begin{array}{r} 3,933 \\ \times 4 \\ \hline \end{array}$$~~

5.
$$\begin{array}{r} 15 \\ \times 8 \\ \hline \end{array}$$

6. ~~$$\begin{array}{r} 137 \\ \times 4 \\ \hline \end{array}$$~~

7.
$$\begin{array}{r} 1,619 \\ \times 7 \\ \hline \end{array}$$

8. ~~$$\begin{array}{r} 4,269 \\ \times 5 \\ \hline \end{array}$$~~

9. 7×64

10. ~~96×3~~

11. 531×8

12. ~~$5 \times 2,111$~~

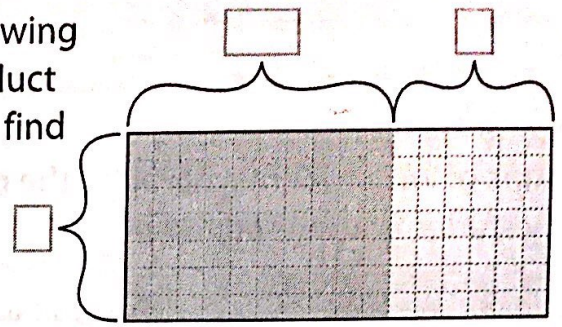
13. 62×9

14. ~~217×4~~

15. 119×3

16. ~~$1,231 \times 2$~~

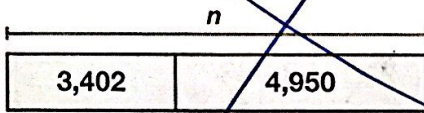
17. © **MP.4 Model with Math** Complete the model showing how to use the Distributive Property to find the product of 7 and 16. Then write an equation showing how to find the product using the Distributive Property.



18. Fred's Auto Sales purchases 3 new vehicles for \$11,219, \$31,611, and \$18,204. What was the total cost for all the vehicles?

19. Kinsey earns \$54,625 a year. She purchases a snowmobile for \$12,005. How much of Kinsey's yearly earnings does she have left?

20. **Number Sense** Dalton added $3,402 + 4,950$ to get 8,352. Estimate the sum by rounding the addends to the nearest hundred. Is Dalton's sum reasonable? Explain.



21. **Higher Order Thinking** Josh used an algorithm to find the product for 9×239 . His work is shown below. Is Josh's work correct? Explain.

$$\begin{array}{r} 239 \\ \times 9 \\ \hline 1,800 \\ 270 \\ + 81 \\ \hline 2,151 \end{array}$$

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22. DeShawn fuels 2 yachts and 6 barges. Each boat gets 126 gallons of fuel. To find how much fuel he needs for all the boats, DeShawn first finds the number of boats, then he uses an algorithm to multiply. Which are the three partial products DeShawn could add to find the final product?

- 48
- 80
- 160
- 800
- 8,000

Remember, you can add the partial products in any order and the sum will be the same.

