LESSON MAKER PRO

Pick the Path

Choose an efficient way to multiply.

GRADE 5 · 5.NOS.B.6.d

5.NOS.B.6.d "Determine and explain when a strategy or algorithm is most efficient."

NAME _____ DATE _____

CHOOSE YOUR STRATEGY

Mental math is often efficient when a factor is close to a multiple of 10 or 100, or when you can break it into easy parts. If a shortcut would take many steps, the standard multiplication algorithm can keep your work organized. Find the product and explain why your method fits.

WORKED EXAMPLE

Find 38 x 5. Choose an efficient strategy.

1. Use mental math because 38 is close to 40.
2. 40 x 5 = 200, and 2 x 5 = 10.
3. 200 - 10 = 190.

Answer: 190

PRACTICE 6 problems

1 Find 99 x 7. Choose mental math or the standard algorithm, and explain why.

ANSWER _____

2 Find 70 x 23. Choose mental math or the standard algorithm, and explain why.

ANSWER _____

3 Find 48 x 25. Choose mental math or the standard algorithm, and explain why.

ANSWER _____

4 Find 67 x 34. Choose mental math or the standard algorithm, and explain why.

ANSWER _____

5 Find 82 x 47. Choose mental math or the standard algorithm, and explain why.

ANSWER _____

6 Find 73 x 46. Choose mental math or the standard algorithm, and explain why.

ANSWER _____

APPLY IT Show your work

1 A school club orders 19 packs of collectible cards. Each pack has 24 cards. How many cards does the club get? Choose an efficient strategy and explain why it fits.

WORK SPACE

ANSWER _____

2 For a gaming tournament, an organizer buys 36 bundles of 74 tokens. How many tokens is that? Choose between the standard algorithm and rounding 74 to 100, then explain which is more efficient.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Compare 98 x 43 and 68 x 43. Choose mental math or the standard algorithm for each product. Find both products and explain why the nearby round number helps more for one problem.

WORK SPACE AND ANSWER

ANSWER KEY

Pick the Path

GRADE 5 · 5.NOS.B.6.d

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 99 x 7. Choose mental math or the standard algorithm, and explain why.	**693; mental math is efficient because 99 x 7 = 100 x 7 - 7.**
2	Find 70 x 23. Choose mental math or the standard algorithm, and explain why.	**1,610; mental math is efficient because 70 x 23 = 70 x 20 + 70 x 3.**
3	Find 48 x 25. Choose mental math or the standard algorithm, and explain why.	**1,200; mental math is efficient because four groups of 25 make 100, and 48 has 12 groups of four.**
4	Find 67 x 34. Choose mental math or the standard algorithm, and explain why.	**2,278; the standard algorithm keeps the two partial products, 268 and 2,010, organized.**
5	Find 82 x 47. Choose mental math or the standard algorithm, and explain why.	**3,854; the standard algorithm keeps the two partial products, 574 and 3,280, organized.**
6	Find 73 x 46. Choose mental math or the standard algorithm, and explain why.	**3,358; the standard algorithm keeps the two partial products, 438 and 2,920, organized.**

PART 2 · APPLY IT

1. **456 cards; mental math is efficient because 19 packs is one fewer than 20 packs.** Calculate 20 x 24 - 24 = 480 - 24 = 456.
2. **2,664 tokens; the standard algorithm is more efficient than rounding 74 to 100 because adjusting for 26 extra tokens per bundle would take more work.** Using the standard algorithm, add 74 x 6 = 444 and 74 x 30 = 2,220 to get 2,664.

CHALLENGE

98 x 43 = 4,214, and 68 x 43 = 2,924. Mental math is efficient for 98 x 43 because 100 x 43 - 2 x 43 = 4,214. The standard algorithm is a reasonable choice for 68 x 43 because rounding 68 to 100 would require a much larger adjustment.

Accept other correct strategies when the student explains why the steps are efficient. For the challenge, an organized place-value method for 68 x 43 is also acceptable.