Multiplying and Dividing Mentally

Extend Your Learning
Answers and Explanations

Use mental math to solve the following problems. Explain your strategies.

1. The Bears are playing the Packers in Chicago in December. The game begins at 12 pm. Tickets are $150 each. How many tickets can you buy for $600?

   To determine how many tickets you can buy for $600, divide $600 by $150.

   Think multiplication: Two times 150 equals 300, so four times 150 is twice as much, or 600. → 2 x 150 = 300, 4 x 150 = 600.

   If 4 times 150 equals 600, then 600 divided by 150 equals 4. → 600 ÷ 150 = 4

   You can buy 4 tickets for $600.

2. Malik is going to see a theater production of the Lion King when he is in San Diego. Each ticket costs $95. How much will four tickets to the Lion King cost?

   To determine how much it will cost to buy 4 tickets at $95 each, multiply 4 times 95.

   It is easier to multiply by 100 than 95. → 4 x 100 = 400

   Each group of 95 is 5 less than a group of 100. So, 4 groups of 5, or 20, must be subtracted from 400. → 400 – 20 = 380

   Four times 95 is 380. → 4 x 95 = 380

   It will cost $380 dollars to buy four tickets to Lion King.

3. Miley Cyrus is performing in Omaha and tickets cost $225 each. How much would 5 tickets cost?

   To determine how much it will cost to buy 5 tickets at $225 each, multiply 5 times 225.

   Think of 225 as 200 plus 25.

   Five times 225 is equal to 5 x 200 plus 5 x 25. → 5 x 225 = (5 x 200) + (5 x 25)

   5 x 2 hundreds = 10 hundreds or 1000
   5 x 25 = 125. Think of quarters. 4 quarters is 100 cents. Add one more quarter for 125 cents. → = 1000 + 125

   Add 1000 + 125. → = 1125

   Five tickets will cost $1125.

4. Sabrina is going to see Miley Cyrus, in concert, while she is in Las Vegas with her parents. They have already been in Las Vegas for 4 days and finally found tickets online for $190 each. How much will it cost for 3 tickets to see Miley Cyrus?
To determine how much it will cost to buy 3 tickets at $190 each, multiply 3 times 190.

Think of 190 as 19 tens. → 3 x 190 = 3 x 19 tens

It is easier to multiply by 20 than 19. → 3 x 20 = 60
Each group of 19 is 1 less than a group of 20.
So, 3 groups of 19 is 3 less than 3 groups of 20. → 60 – 3 = 57

If 3 x 19 = 57, then 3 times 19 tens is 57 tens → 3 x 19 tens = 57 tens

57 tens is the same as 570. → = 570

It will cost $570 dollars to buy three tickets to the concert.

5. a) Dairy Delight Ice Cream Shoppe advertises that they have 36 flavors of ice cream. They also have three types of cones: Cake Cone, Sugar Cone, and Waffle Cone. How many different kinds of one-dip ice cream cones can be ordered?
The cake cone can be ordered with any of the 36 flavors. The sugar cone can also be ordered with any of the 36 flavors, as can the waffle cone. To determine the number of different combinations multiply 3 times 36.

Three groups of 36 is the same as 3 groups of 30 plus 3 groups of 6. → 3 x 36 = (3 x 30) + (3 x 6)

3 times 30 equals 90 and 3 times 6 equals 18. → = 90 + 18

90 plus 18 equals 108. → = 108

It is possible to order 108 different one-dip cones.

b) Dairy Delight Ice Cream Shoppe just bought a Dip-Cone machine. This makes it possible to put either a chocolate or a cherry coating on any ice cream cone. Now, how many different one-dip ice cream cones can be ordered at the ice cream shop?
108 cones can be ordered without any coating. An additional 108 cones can be ordered with a chocolate dip and another 108 cones can be ordered with a cherry dip. To determine the number of different combinations multiply 3 times 108.

Three groups of 108 is the same as 3 groups of 100 plus 3 groups of 8. → 3 x 108 = (3 x 100) + (3 x 8)

3 times 100 equals 300 and 3 times 8 equals 24. → = 300 + 24

300 plus 24 equals 324. → = 324

With the Dip-Cone machine, it is possible to order 324 different one-dip cones.