



Math
Released Item 2016

Grade 7

Cost of Ticket
M20598

A family purchased tickets to a museum and spent a total of \$38.00. The family purchased 4 tickets. There was a \$1.50 processing fee for each ticket. Write and solve an equation that can be used to find x , the cost of one ticket to the museum. Show your work or explain your answer.

Enter your equation, your answer, and your work or explanation in the space provided.

Rubric

Score	Description
3	<p>Student response includes each of the following 3 elements.</p> <ul style="list-style-type: none"> • Modeling component = 1 point <ul style="list-style-type: none"> ○ The student writes a correct equation. • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides the correct price of one museum ticket, \$8. • Modeling component = 1 point <ul style="list-style-type: none"> ○ The student provides a valid explanation or work. <p>Sample Student Response:</p> $4(x + 1.50) = 38 \text{ or equivalent}$ $4x + 6 = 38$ $4x = 32$ $x = 8$ <p>The cost of one ticket is \$8.</p>
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

Anchor Set

A1 – A8

With Annotations

$$(38-6) \div 4 = x$$

$$32 \div 4 = x$$

$$8 = x$$

1.5 dollar fee

per ticket. 4 tickets = \$6 + cost

of ticket. $\$38 - \$6 = \$32$

divided by 4 = \$8 per
ticket without fee.

Annotation

Anchor Paper 1

Score Point 3

This response receives full credit. The student includes each of the three required elements:

- The student writes a correct equation that can be used to find x $[(38 - 6) \div 4 = x]$.
- The student determines the correct price of one museum ticket ($8 = x$; \$8 per ticket without fee).
- The student presents a correct process for determining the cost of one ticket to the museum (1.5 dollar fee per ticket. 4 tickets = \$6 + cost of ticket. $\$38 - \$6 = \$32$. $\$32$ divided by 4 = \$8 per ticket without fee). The response determines the \$6.00 processing fee, subtracts it from the total amount, and then divides by the number of tickets. The statement (4 tickets = \$6 + cost of ticket) is stating that the 4 tickets have a \$6 combined fee that was added onto the cost of the tickets.

Note: It is not necessary to show how the processing fee of \$6.00 [4 times 1.50] was determined. This step can be done as mental math and the response will receive credit for element of valid work.

$$\cancel{38.00 \text{ (total)}}$$

$$\cancel{4 \text{ tickets} \times 1.50 \text{ p.}}$$

$$\begin{array}{r} 1.50 \\ \times 4 \\ \hline 6.00 \end{array}$$

$$\begin{array}{r} 38.00 \\ - 6.00 \\ \hline 32.00 \end{array}$$

$$4 \overline{) 32.00} \begin{array}{l} 8 \end{array}$$

$$x = \$8 \text{ or } 1$$

$$4x + (1.50 \times 4) = 38.00$$

$$\textcircled{\$8.00 / 1 \text{ ticket}}$$

Annotation

Anchor Paper 2

Score Point 3

This response receives full credit. The student includes each of the three required elements:

- The student writes a correct equation that can be used to find x ($4x + (1.50 * 4) = 38.00$).
- The student determines the correct price of one museum ticket (\$8.00/1 ticket).
- The student presents a correct process for determining the cost of one ticket to the museum ($1.50 \times 4 = 6.00$, $38.00 - 6.00 = 32.00$, $\overset{8}{4}\overline{)32.00}$).

The response determines the \$6.00 processing fee, subtracts it from the total amount, and then divides by the number of tickets.

$$4x + 1.50(4) = \overset{\uparrow}{8.00} 38.00$$

Annotation

Anchor Paper 3

Score Point 2

This response receives partial credit. The student includes two of the three required elements:

- The student writes a correct equation that can be used to find x ($4X + 1.50(4) = \$38.00$).
- The student determines the correct price of one museum ticket (8.00).

The response does not show any work to indicate a process for determining the cost of one ticket to the museum.

$$4 \times \$1.50 = \$6$$

$$\$38.00 - 4(\$1.50) \div 4 = x$$

$$\begin{array}{r} 38.00 \\ - 6.00 \\ \hline 32.00 \end{array}$$

$$x = 8$$

$$\begin{array}{r} \times 8 \\ 4 \overline{) 32} \\ \underline{32} \\ 0 \end{array}$$

Annotation

Anchor Paper 4

Score Point 2

This response receives partial credit. The student includes two of the three required elements:

- The student determines the correct price of one museum ticket ($x = 8$).
- The student presents a correct process for determining the cost of one ticket to the museum ($4 \times \$1.50 = \6 , $38.00 - 6.00 = 32.00$, $\frac{x8}{4 \overline{)32}}$).

Although the work does not follow from the incorrect equation ($\$38.00 - 4 (\$1.50) \div 4 = x$), it still provides complete and correct steps. The response determines the \$6.00 processing fee, subtracts it from the total amount, and then divides by the number of tickets.

The student writes an incorrect equation that would not lead to the price of one ticket ($\$38.00 - 4 (\$1.50) \div 4 = x$). If the order of operations were followed correctly this equation would result in $x = 36.5$. The 6 would be divided by 4 first, then the difference subtracted from 38.

$$1.50 \div 4 = 38 \div 4 = x$$

$$x = 8.50$$

Annotation

Anchor Paper 5

Score Point 1

This response receives partial credit. The student includes one of the three required elements:

- The student determines the correct price of one museum ticket ($x = 8$).

The student writes an incorrect equation that would not lead to the price of one ticket ($1.50 \cdot 4 - 38 \div 4 = x$). If the order of operations were followed correctly, this equation would result in $x = -3.5$. The multiplication and division need to be completed first resulting in $6 - 9.5 = x$.

The response does not show any work to indicate a process for determining the cost of one ticket to the museum.

$$\begin{array}{r} 3810 \cdot 150 \\ 150 \cdot 4 \\ \hline 3650 \quad 600 \end{array}$$

$$3650 + 600 = 4250$$
$$(150 \cdot 4) + 38 = 38$$

Annotation

Anchor Paper 6

Score Point 1

This response receives partial credit. The student includes one of the three required elements:

- The student writes a correct equation that can be used to find x [$(1.50 \cdot 4) + x4 = 38$]. The equation given is unique but acceptable.

The response does not determine the correct price of one museum ticket.

The response does not show any work to indicate a process for determining the cost of one ticket to the museum.

$$38.00 \div 4 = 9.50$$

$$\begin{array}{r} 9.50 \\ \times 38 \\ \hline 36.1 \end{array}$$

$$\begin{array}{r} 36.10 \\ + 6.00 \\ \hline 42.10 \end{array}$$

$$\begin{array}{r} 1.50 \\ \times 4 \\ \hline 6.00 \end{array}$$

$$x = 9.50$$

The cost for each ticket is \$9.50 I got that answer by dividing 38.00 by 4 just in case I multiplied 9.50 by 38 got 36.1 and I added 36.10 by 6.00 for the tax and I got \$42.

Annotation

Anchor Paper 7

Score Point 0

This response receives no credit. The student includes none of the three required elements:

There is no equation stated.

The response determines an incorrect price for one ticket ($x = 9.50$). Note: It is acceptable to give both the final cost with the fee and without the fee, but only stating the final cost with the fee will not receive credit.

The response does not show sufficient work to indicate a process for determining the cost of one ticket to the museum. Although there is one appropriate step given, it is not enough work to show an appropriate process ($1.50 \times 4 = 6.00$). Just determining the \$6.00 processing fee is incomplete, and the remaining work given is not appropriate for the task. ($38.00 \div 4 = 9.50$, $9.50 \times 38 = 36.1$). The \$6.00 should be subtracted from the total amount and then divided by the number of tickets.

$$38.00 - 1.50 = 36.50$$

9.13 per person

I did the total minus 1.50 and then that equaled $36.50 \div 4$ because there were 4 people and got 9.13 per person.

Annotation
Anchor Paper 8
Score Point 0
<p>This response receives no credit. The student includes none of the three required elements:</p> <p>There is no equation stated.</p> <p>The response determines an incorrect price for one ticket (9.13 per person).</p> <p>The response shows an incorrect process for determining the cost of one ticket to the museum. Subtracting the \$1.50 fee only once is not an appropriate strategy ($38.00 - 1.50 = 36.5 \div 4$).</p>

Practice Set

P101 - P105

No Annotations Included

$$38 = 4(x + 1.5)$$

$$38 = 4x + 6$$

$$32 = 4x$$

$$x = 8$$

Each ticket costs 8 dollars.

$$38.00 \div 4 = 1.50 + X$$

$$\begin{array}{r} 60 \\ 4 \overline{) 240} \end{array}$$

$$\begin{array}{r} 8.9 \\ 4 \overline{) 38.00} \\ \underline{32} \\ 60 \\ \underline{36} \\ 240 \end{array}$$

$$\begin{array}{r} 8.96 \\ + 1.50 \\ \hline 10.46 \end{array}$$

$$x = 8.96$$

$$\begin{array}{r} 150 \\ \times 4 \\ \hline 600 \end{array}$$

$$\begin{array}{r} 38 \\ + 6 \\ \hline 32 \end{array}$$

$$\begin{array}{r} 8 \\ \sqrt{32} \end{array}$$

$$\textcircled{V=18}$$

$$\begin{array}{r}
 \$38.00 \\
 - 6.00 \\
 \hline
 32.00
 \end{array}
 \quad
 \begin{array}{r}
 1.50 \\
 \times 4 \\
 \hline
 6.00
 \end{array}$$

$$X = \frac{38.00 - 1.50(4)}{4}$$

$$X = \frac{38.00 - 6}{4}$$

$$X = \frac{32.00}{4}$$

$$X = \$8 \text{ per Ticket}$$

Practice Set

Paper	Score
P101	3
P102	1
P103	0
P104	2
P105	3