

# Island Numeracy Assessment

## Grade 6+: Computational Fluency

### Collaborative Activity

In the multiplication table below, the row and the column headings are all missing, and only some of the products in the table are filled in.

All the numbers in the table are positive integers.

What is the value of  $A + B + C + D + E$ ?

X					
	A	10		20	
	15	B	40		
	18		C	60	
		20		D	24
			56		E


X	3	5	8	10	6
2	A	10	16	20	12
5	15	B	40	50	30
6	18	30	C	60	36
4	12	20	32	D	24
7	21	35	56	70	E



$$A + B + C + D + E = 161$$



$$6 + 25 + 48 + 40 + 42 = 161$$

# Island Numeracy Assessment

## Grade 6+: Computational Fluency

Assessment Question	Answer Key
1. Think of at least two ways to solve $24 \times 5$ . Show your strategies.	Possible answers:  Rectangular grid: showing $5 \times 20$ and $5 \times 4 = 120$  Mental math thinking: $5 \times 20 = 100$ plus $5 \times 4 = 20$ <b>120</b> total  Doubling/halving: <b><math>12 \times 10</math></b>
2. Solve $4 + 6 \times 3 \div 2 - 1$	12 If student answers 14, they are computing in order without using order of operations.
3. Solve $18 - 2 \times (5 + 3) \div 2$	10
4. A family has a compost bin with the following dimensions $H = 2.4 \text{ m}$ $L = 1.2 \text{ m}$ $W = 1.5 \text{ m}$    What is the volume of the compost bin? $V = L \times W \times H$	$4.32 \text{ m}^3$  The intent of this question is to assess decimal multiplication not understanding of volume. We have supplied the formula.

<p>5. Five friends each bought a bag of fruit which cost \$2.47. Estimate how much money they spent altogether? Describe/show your strategy.</p> 	<p>Possible solutions:</p> <p><math>5 \times \\$2.50 = \\$12.50</math></p> <p><math>5 \times \\$2 = \\$10</math></p> <p><math>5 \times \\$3 = \\$15</math></p> <p>I knew it would be between \$10 &amp; \$15</p>
<p>6. I divided 6.12 by 3 and wrote down the answer, 2.4. What did I get wrong? Use pictures, words and symbols to explain the mistake.</p>	<p>Correct answer is <b>2.04</b></p> <p>Possible explanations include:</p> <p>12 hundredths <math>\div</math> 3 is 4 hundredths, not 4 tenths</p> <p>Pictures could include base ten blocks showing the decomposition of one tenth and 2 hundredths into 12 hundredths and then divided into 3 groups</p>
<p>7. How could you share 1.4 meters of rope evenly between 4 people? Show how you know.</p> 	<p>Answer is <b>0.35m</b></p> <p>Possible demonstrations of understanding:</p> <ul style="list-style-type: none"> <li>~ an algorithm <math>1.4 \div 4 = 0.35</math></li> <li>~ a number line representation cut into 4 pieces</li> <li>~ base ten blocks drawing showing decomposition of one whole plus four tenths to become 140 hundredths divided by four equals 35 hundredths</li> </ul>

<p>8. You earn \$11 each week for your allowance. You are saving up to buy a guitar that costs \$237. About how many weeks will it take you to save enough money? Explain your thinking.</p> 	<p>About <b>22 weeks</b></p> <p><math>\\$10 \times 22 = \\$220</math> plus  <math>\\$1 \times 22 = \\$242</math></p>
<p>9. The zero button on your calculator is broken. Using multiplication, show two different ways you could make the display show 100?</p>  <p>Show two different ways you could display 100 using only division?</p>	<p>Examples:</p> <p><math>4 \times 25</math></p> <p><math>8 \times 12.5</math></p> <p><math>2 \times 25 \times 2</math></p> <p><math>4 \times 12.5 \times 2</math></p> <p><math>1625 \div 16.25</math></p> <p><math>254 \div 2.54</math></p> <p><math>12345678 \div 123456.78</math></p>
<p>10. If you didn't know the solution for <math>7 \times 8</math>, how could you figure it out? Show your thinking:</p>	<p><math>7 \times 4 = 28</math>  <math>28 + 28 = 56</math></p> <p><math>7 \times 2 = 14</math>  <math>14 + 14 + 14 + 14 = 56</math></p> <p><math>(7 \times 10) - 14</math></p>

# Island Numeracy Assessment

## Grade 6+: Computational Fluency

### Performance Task

If you place the operation signs, +, -, x, ÷, between the digits below, it is possible to make 100. Try and find at least two ways to equal 100. You may also use brackets ( ).

$$1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 = 100$$

Many different answers possible. Look for the way students use logic and reasoning to approach the problem. Do they use brackets? Do they use all the operations?