Self-Assessment for Grade 12 Workplace Math (MEL4E)

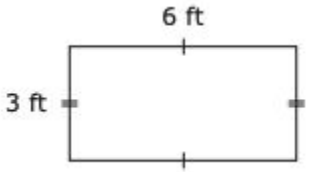
Students who are registered for Grade 12 Workplace Math (MEL4E) may benefit from a self evaluation and review of the following expectations from earlier math courses.

The questions in this self-assessment reflect some of the key ideas learned in prerequisite courses. They do not represent the problem solving approach or the rich experience that students would be exposed to in a classroom. The intention is for students to revisit some key concepts and, if needed, access review materials in an informal environment at a pace that is comfortable for the student.

<table>
<tr><th>Concept(s)</th><th>Sample Question</th><th>How comfortable do you feel with this concept?</th><th>Link(s) to explore concept further</th></tr>
<tr>
<td>I can determine equivalent fractions, decimals and percents</td>
<td>1. Without using a calculator, complete this table:
<table>
<tr><th>Fraction</th><th>Decimal</th><th>Percent</th></tr>
<tr><td>$\frac{1}{2}$</td><td></td><td></td></tr>
<tr><td>$\frac{3}{4}$</td><td></td><td></td></tr>
<tr><td></td><td>0.25</td><td></td></tr>
<tr><td></td><td>0.01</td><td></td></tr>
<tr><td></td><td></td><td>80%</td></tr>
<tr><td></td><td></td><td>13%</td></tr>
</table>
</td>
<td>  ☐ Very comfortable
  ☐ Somewhat comfortable
  ☐ Not at all comfortable</td>
<td>Describing Fractions as Decimals</td>
</tr>
</table>

I can round a number to the nearest whole number	2. Round to the nearest dollar: a) $13.89 b) $29.45 c) $29.50	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Rounding Money to the Nearest Dollar
I can multiply a number by powers of 10 and divide by powers of 10, without a calculator	3. Evaluate without using a calculator: a) 1.5 x 1000 b) 0.975 x 100 c) 2300 ÷1000 d) 2 500 000 ÷1000	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Multiplying a decimal by a power of 10 | Decimals | Pre-Algebra | Khan Academy
I can convert quantities using the Metric system	4. There are _____ mL in a half-litre.	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Metric system: units of distance | 4th grade | Khan Academy
I can solve problems given information about the components of total earnings	5. A plumber's assistant makes $19.80 per hour and gets time-and-a-half if they work more than 44 hours in a week. If an assistant worked 52 hours last week, how much did the assistant make?	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Figure Out Time and a Half Overtime

I can calculate discounts, sale prices and after-tax costs	6. A pair of headphones costs $49.99 but is on sale for “25% off”. a) What is the sale price of the headphones? b) Calculate the total cost including 13% tax.	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Percentages
I can determine which of two options is a better deal	7. Which is the better buy? 250mL for $1.99 or 2L for $9.99	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Unit Rates
I can determine actual lengths using a scale	8. A road map uses a scale of 1 cm : 7 km. What is the actual distance between two towns that are 6 cm apart on the map?	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Solving Ratio Problems

I can calculate the perimeter and area of a rectangle	9. Find the perimeter and area of the figure.  	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Perimeter of Composite Shapes Area of Composite Shapes
I can calculate the surface area (total area) of a prism	10. The side lengths of a die are 1.5cm. What is the total area of the faces of the die? 	 ☐ **Very comfortable**  ☐ **Somewhat comfortable**  ☐ **Not at all comfortable**	Nets of 3D Objects

Students who take Workplace Math may find it useful to have a working knowledge of spreadsheets. The following tutorials will provide an introduction to Google Sheets.

Intro to Google Sheets: Google Sheets - Full Tutorial
Create graphs in Google Sheets: Add & Edit a Chart or Graph

Solutions to Sample Questions:

1. Without using a calculator, complete this table:

Fraction	Decimal	Percent
$\frac{1}{2}$	**0.5**	**50%**
$\frac{3}{4}$	**0.75**	**75%**
$\frac{1}{4}$	0.25	**25%**
$\frac{1}{10}$	0.01	**10%**
$\frac{8}{10}$	**0.80**	80%
$\frac{13}{100}$	**0.13**	13%

2. Round to the nearest dollar:
a) \$13.89 **\$14.00**
b) \$29.45 **\$29.00**
c) \$29.50 **\$30.00**

3. Evaluate without using a calculator:
a) 1.5 x 1000 **1 500**
b) 0.975 x 100 **97.5**
c) 2300 ÷ 1000 **2.3**
d) 2 500 000 ÷ 1000 **2 500**

4. There are **500** mL in a half-litre.

5. A plumber's assistant earns $19.80 per hour and gets time-and-a-half if they work more than 44 hours in a week. If an assistant worked 52 hours last week, how much did the assistant earn?

For the first 44 hours, the assistant earned $19.80 x 44 = $871.20.
For the remaining 8 hours, the assistant earned $19.80 x 8 x 1.5 = $237.60
The total earnings is $871.20 + $237.60 = $1108.80.
Therefore, if the assistant worked 52 hours, they earned $1108.80

6. A pair of headphones costs $49.99 but is on sale for "25% off".
a) What is the sale price of the headphones?
b) Calculate the total cost including 13% tax.

a) 25% of $49.99 is 0.25 x 49.99, which rounds to $12.50. The price is being reduced by $12.50, so the sale price becomes $49.99 - $12.50.
Therefore, the sale price is $37.49.
b) 13% of $37.49 is $4.87. This is the amount of tax that must be added.
The total cost including tax is $37.49 + $4.87 = $42.36.

7. Which is the better buy?
250mL for $1.99 or 2L for $9.99

2L for $9.99 is the better buy.

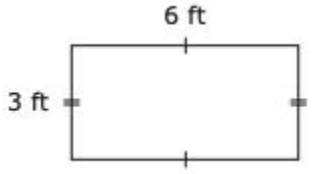
Method 1: Calculate the unit rate
250mL for $1.99 is the same as 125.6mL for $1
2000mL for $9.99 is the same as 200.2mL for $1.
Therefore, you get more for $1 with the 2L option, making it the better buy.

Method 2: Compare amounts
250mL is ¼ of a litre. So there are eight 250mL in 2 litres.
$1.99 x 8 = $15.92, which is much higher than $9.99.
Therefore, the 2L option is the better buy.

8. A road map uses a scale of 1 cm : 7 km. What is the actual distance between two towns that are 6 cm apart on the map?

The actual distance between the towns is 42km.

9. Find the perimeter and area of the figure.



Perimeter: 6 + 3 + 6 + 3 = 18 feet
Area: 6 x 3 = 18 square feet

10. The side lengths of a die are 1.5cm. What is the total area of the faces of the die?

Each face has dimensions 1.5cm by 1.5cm, so the area of one face is 2.25 cm^2. The total area (surface area) is 13.5 cm^2.