

NUMERACY:

The Basics Workbook



Set Q: Metric Conversions

Companion Workbook to Numeracy: The Basics Video Series

Workplace Education Manitoba would like to express appreciation to the following for supporting the development of this curriculum:

The Government of Canada
Human Resource Skills Development Canada (HRSDC)

and

The Manitoba Government
Industry Workforce Development (IWD), Entrepreneurship,
Training and Trade (ETT)

Workplace Education Manitoba would also like to thank the individuals from across Manitoba who provided consultation, content, and feedback.

For more information,
visit www.wem.mb.ca
or contact the Project Coordinator
Lindsay Laidlaw at info@wem.mb.ca

Workplace Education Manitoba
1000 Waverley Street
Winnipeg, MB, R3T 0P3

©Workplace Education Manitoba, 2012

All rights reserved; no part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical, photocopying, recording, or otherwise without prior written permission of the Publishers. This manual may not be lent, resold, hired out or otherwise disposed by way of trade in any form of binding or cover than that which it is published, without the prior consent of the Publishers.

ACKNOWLEDGMENTS





INTRODUCTION

What is Numeracy: The Basics Workbook?

This workbook is intended to accompany Workplace Education Manitoba's (WEM) Numeracy: The Basics Video Series, a set of 50 videos that explain essential numeracy concepts.

The refresher videos cover 25 critical numeracy topics, each broken into concept and practice.

The video series and accompanying downloadable workbooks can be found on the WEM website at http://www.wem.mb.ca/learning_on_demand.aspx

These Numeracy: The Basics workbooks provide an opportunity for additional skill-building practice.

Numeracy: The Basics topics are:

- Order of Operations 1
- Order of Operations 2
- Adding & Subtracting Fractions 1
- Adding & Subtracting Fractions 2
- Multiplying & Dividing Fractions
- Mixed & Improper Fractions
- Operations with Mixed Fractions 1
- Operations with Mixed Fractions 2
- Operations with Mixed Fractions 3
- Adding & Subtracting Decimals
- Multiplying Decimals
- Dividing Decimals
- Order of Operations & Decimals
- Decimals, Fractions & Percent 1
- Decimals, Fractions & Percent 2
- Imperial Conversions
- Metric Conversions
- Metric and Imperial Conversions
- Geometry 1 – Perimeter
- Geometry 2 – Area
- Geometry 3- Volume
- Solving Equations 1
- Solving Equations 2
- Ratio & Proportion
- Averages



METRIC CONVERSIONS

This workbook contains five skill-building practice sections. Solutions can be found at the end of the workbook.

Practice Section A

Convert each of the following metric measures into the units indicated.

1. $12\text{ cm} = \underline{\hspace{2cm}}\text{ m}$
2. $4\text{ cm} = \underline{\hspace{2cm}}\text{ mm}$
3. $4\text{ km} = \underline{\hspace{2cm}}\text{ mm}$
4. $8\text{ km} = \underline{\hspace{2cm}}\text{ cm}$
5. $7\text{ m} = \underline{\hspace{2cm}}\text{ cm}$
6. $13\text{ cm} = \underline{\hspace{2cm}}\text{ mm}$
7. $36\text{ mm} = \underline{\hspace{2cm}}\text{ cm}$
8. $29\text{ m} = \underline{\hspace{2cm}}\text{ km}$
9. $5.5\text{ cm} = \underline{\hspace{2cm}}\text{ mm}$
10. $0.6\text{ cm} = \underline{\hspace{2cm}}\text{ m}$
11. $9\text{ km} = \underline{\hspace{2cm}}\text{ cm}$
12. $27\text{ mm} = \underline{\hspace{2cm}}\text{ cm}$
13. $8.1\text{ m} = \underline{\hspace{2cm}}\text{ mm}$
14. $7.5\text{ m} = \underline{\hspace{2cm}}\text{ km}$
15. $67000\text{ mm} = \underline{\hspace{2cm}}\text{ km}$

**Practice Section B**

Convert each of the following metric measures into the units indicated.

1. $107\text{ mm} = \underline{\hspace{1cm}}\text{ cm}$
2. $142\text{ mm} = \underline{\hspace{1cm}}\text{ km}$
3. $17.5\text{ km} = \underline{\hspace{1cm}}\text{ cm}$
4. $11.25\text{ km} = \underline{\hspace{1cm}}\text{ mm}$
5. $322\text{ cm} = \underline{\hspace{1cm}}\text{ m}$
6. $5.5\text{ km} - 2400\text{ cm} = \underline{\hspace{1cm}}\text{ mm}$
7. $1.5\text{ km} + 5000\text{ m} = \underline{\hspace{1cm}}\text{ cm}$
8. $36\text{ cm} + 3\text{ km} = \underline{\hspace{1cm}}\text{ mm}$
9. $5.3\text{ km} + 7500\text{ m} = \underline{\hspace{1cm}}\text{ cm}$
10. $5\text{ m} + 3.7\text{ cm} = \underline{\hspace{1cm}}\text{ mm}$
11. $4\text{ km} + 2300\text{ cm} - 610\text{ m} = \underline{\hspace{1cm}}\text{ cm}$
12. $5\text{ m} + 21\text{ cm} - 1700\text{ mm} = \underline{\hspace{1cm}}\text{ km}$
13. $5680\text{ m} + 279\text{ cm} - 1.7\text{ km} = \underline{\hspace{1cm}}\text{ mm}$
14. $1.5\text{ km} - 3390\text{ cm} + 670\text{ mm} = \underline{\hspace{1cm}}\text{ m}$
15. $7000\text{ m} - 5.4\text{ km} + 27500\text{ mm} = \underline{\hspace{1cm}}\text{ cm}$

**Practice Section C**

Convert each of the following metric measures into the units indicated.

- Convert 4750 mm into ___ m + ___ cm + ___ mm
- Convert 6894220 mm into ___ km + ___ m + ___ cm + ___ mm
- $5\text{ m} + 21\text{ cm} - 1700\text{ mm} + 5.5\text{ km} - 2400\text{ cm} = \underline{\hspace{2cm}}\text{ mm}$
- $(0.75\text{ km} + 548\text{ m} - 27500\text{ mm}) - (1.5\text{ m} - 1500\text{ mm} + 1.75\text{ cm}) = \underline{\hspace{2cm}}\text{ m}$
- $(1.5\text{ km} - 1519\text{ cm}) + \frac{300\text{ m}}{1.25} - \left(1.125\text{ m} \div \frac{1}{4} + 125\text{ cm}\right) = \underline{\hspace{2cm}}\text{ km}$

Practice Section D

In this section, solutions for the practice questions contain commonly-made errors. For each question, circle the error(s) and give a correct solution.

1.

$$5\text{ m} + 21\text{ mm} - 1.5\text{ cm} = \underline{\hspace{2cm}}\text{ cm}$$

$$5\cancel{\text{ m}} \times \frac{100\cancel{\text{ cm}}}{1\cancel{\text{ m}}} + 21\cancel{\text{ mm}} \times \frac{1\text{ cm}}{10\cancel{\text{ mm}}} - 1.5\text{ cm} = \underline{\hspace{2cm}}\text{ cm}$$

$$500\text{ cm} + 210\text{ cm} - 1.5\text{ cm} = \underline{\hspace{2cm}}\text{ cm}$$

$$= 708.5\text{ cm}$$

2.

$$4\text{ m} - 21\text{ cm} = \underline{\hspace{2cm}}\text{ mm}$$

$$4\cancel{\text{ m}} \times \frac{100\cancel{\text{ cm}}}{1\cancel{\text{ m}}} \times \frac{10\text{ mm}}{1\cancel{\text{ cm}}} = 400\text{ mm}$$

$$21\cancel{\text{ cm}} \times \frac{10\text{ mm}}{1\cancel{\text{ cm}}} = 210\text{ mm}$$

$$400 - 210 = 190\text{ cm}$$



Practice Section E

Challenge Question. If you can do this one, then you get an A⁺. 😊

A rope that is 24000 mm long must be cut into 20 individual pieces such that each piece is 5 cm longer than the previous piece. How long, in meters, is the 10th piece of rope? Support your answer with suitable calculations.



SOLUTIONS

Set Q

Metric Conversions

**METRIC CONVERSIONS****Practice Section A**

1. Solution:

$$12 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$$

$$12 \cancel{\text{cm}} \times \frac{1\text{m}}{100\cancel{\text{cm}}} = \frac{12}{100} \text{ m} = 0.12 \text{ m}$$

2. Solution:

$$4 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$$

$$4 \cancel{\text{cm}} \times \frac{10\text{mm}}{1\cancel{\text{cm}}} = 40 \text{ mm}$$

3. Solution:

$$4 \text{ km} = \underline{\hspace{2cm}} \text{ mm}$$

$$4 \cancel{\text{km}} \times \frac{1000\cancel{\text{m}}}{1\cancel{\text{km}}} \times \frac{100\cancel{\text{cm}}}{1\cancel{\text{m}}} \times \frac{10\text{mm}}{1\cancel{\text{cm}}} = 4000000 \text{ mm}$$

4. Solution:

$$8 \text{ km} = \underline{\hspace{2cm}} \text{ cm}$$

$$8 \cancel{\text{km}} \times \frac{1000\cancel{\text{m}}}{1\cancel{\text{km}}} \times \frac{100\text{cm}}{1\cancel{\text{m}}} = 800000 \text{ cm}$$

5. Solution:

$$7 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$$

$$7 \cancel{\text{m}} \times \frac{100\text{cm}}{1\cancel{\text{m}}} = 700 \text{ cm}$$

6. Solution:

$$13 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$$

$$13 \cancel{\text{cm}} \times \frac{10\text{mm}}{1\cancel{\text{cm}}} = 130 \text{ mm}$$

7. Solution:

$$36 \text{ mm} = \underline{\hspace{2cm}} \text{ cm}$$

$$36 \cancel{\text{mm}} \times \frac{1\text{cm}}{10\cancel{\text{mm}}} = \frac{36}{10} \text{ cm} = 3.6 \text{ cm}$$



8. Solution:

$$29 \text{ m} = \underline{\hspace{2cm}} \text{ km}$$

$$29 \cancel{\text{m}} \times \frac{1\text{km}}{1000\cancel{\text{m}}} = \frac{29}{1000} \text{ km} = 0.029 \text{ km}$$

9. Solution:

$$5.5 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$$

$$5.5 \cancel{\text{cm}} \times \frac{10\text{mm}}{1\cancel{\text{cm}}} = 55 \text{ mm}$$

10. Solution:

$$0.6 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$$

$$0.6 \cancel{\text{cm}} \times \frac{1\text{m}}{100\cancel{\text{cm}}} = \frac{0.6}{100} \text{ m} = 0.006 \text{ m}$$

11. Solution:

$$9 \text{ km} = \underline{\hspace{2cm}} \text{ cm}$$

$$9 \cancel{\text{km}} \times \frac{1000\cancel{\text{m}}}{1\cancel{\text{km}}} \times \frac{100\text{cm}}{1\cancel{\text{m}}} = 900000 \text{ cm}$$

12. Solution:

$$27 \text{ mm} = \underline{\hspace{2cm}} \text{ cm}$$

$$27 \cancel{\text{mm}} \times \frac{1\text{cm}}{10\cancel{\text{mm}}} = \frac{27}{10} \text{ cm} = 2.7 \text{ cm}$$

13. Solution:

$$8.1 \text{ m} = \underline{\hspace{2cm}} \text{ mm}$$

$$8.1 \cancel{\text{m}} \times \frac{100\cancel{\text{cm}}}{1\cancel{\text{m}}} \times \frac{10\text{mm}}{1\cancel{\text{cm}}} = 8100 \text{ mm}$$

14. Solution:

$$7.5 \text{ m} = \underline{\hspace{2cm}} \text{ km}$$

$$7.5 \cancel{\text{m}} \times \frac{1\text{km}}{1000\cancel{\text{m}}} = \frac{7.5}{1000} \text{ km} = 0.0075 \text{ km}$$

15. Solution:

$$67000 \text{ mm} = \underline{\hspace{2cm}} \text{ km}$$

$$67000 \cancel{\text{mm}} \times \frac{1\cancel{\text{cm}}}{10\cancel{\text{mm}}} \times \frac{1\cancel{\text{m}}}{100\cancel{\text{cm}}} \times \frac{1\text{km}}{1000\cancel{\text{m}}} = \frac{67000}{10 \times 100 \times 1000} \text{ km} = 0.067 \text{ km}$$

**Practice Section B**

1. Solution:

$$107 \text{ mm} = \text{ ______ } \text{ cm}$$

$$107 \cancel{\text{ mm}} \times \frac{1 \text{ cm}}{10 \cancel{\text{ mm}}} = \frac{107}{10} \text{ cm} = 10.7 \text{ cm}$$

2. Solution:

$$142 \text{ mm} = \text{ ______ } \text{ km}$$

$$142 \cancel{\text{ mm}} \times \frac{1 \cancel{\text{ cm}}}{10 \cancel{\text{ mm}}} \times \frac{1 \cancel{\text{ m}}}{100 \cancel{\text{ cm}}} \times \frac{1 \text{ km}}{1000 \cancel{\text{ m}}} = \frac{142}{10 \times 100 \times 1000} \text{ km} = 0.000142 \text{ km}$$

3. Solution:

$$17.5 \text{ km} = \text{ ______ } \text{ cm}$$

$$17.5 \cancel{\text{ km}} \times \frac{1000 \cancel{\text{ m}}}{1 \cancel{\text{ km}}} \times \frac{100 \text{ cm}}{1 \cancel{\text{ m}}} = 1750000 \text{ cm}$$

4. Solution:

$$11.25 \text{ km} = \text{ ______ } \text{ mm}$$

$$11.25 \cancel{\text{ km}} \times \frac{1000 \cancel{\text{ m}}}{1 \cancel{\text{ km}}} \times \frac{100 \cancel{\text{ cm}}}{1 \cancel{\text{ m}}} \times \frac{10 \text{ mm}}{1 \cancel{\text{ cm}}} = 11250000 \text{ mm}$$

5. Solution:

$$322 \text{ cm} = \text{ ______ } \text{ m}$$

$$322 \cancel{\text{ cm}} \times \frac{1 \text{ m}}{100 \cancel{\text{ cm}}} = \frac{322}{100} \text{ m} = 3.22 \text{ m}$$

6. Solution:

$$5.5 \text{ km} - 2400 \text{ cm} = \text{ ______ } \text{ mm}$$

$$5.5 \cancel{\text{ km}} \times \frac{1000 \cancel{\text{ m}}}{1 \cancel{\text{ km}}} \times \frac{100 \cancel{\text{ cm}}}{1 \cancel{\text{ m}}} \times \frac{10 \text{ mm}}{1 \cancel{\text{ cm}}} = 5500000 \text{ mm}$$

$$2400 \cancel{\text{ cm}} \times \frac{10 \text{ mm}}{1 \cancel{\text{ cm}}} = 24000 \text{ mm}$$

$$5500000 - 24000 = 5476000 \text{ mm}$$



7. Solution:

$$1.5 \text{ km} + 5000 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$$

$$1.5 \cancel{\text{km}} \times \frac{1000 \cancel{\text{m}}}{1 \cancel{\text{km}}} \times \frac{100 \text{cm}}{1 \cancel{\text{m}}} = 150000 \text{ cm}$$

$$5000 \cancel{\text{m}} \times \frac{100 \text{cm}}{1 \cancel{\text{m}}} = 500000 \text{ cm}$$

$$150000 + 500000 = 650000 \text{ cm}$$

8. Solution:

$$36 \text{ cm} + 3 \text{ km} = \underline{\hspace{2cm}} \text{ mm}$$

$$36 \cancel{\text{cm}} \times \frac{10 \text{mm}}{1 \cancel{\text{cm}}} = 360 \text{ mm}$$

$$3 \cancel{\text{km}} \times \frac{1000 \cancel{\text{m}}}{1 \cancel{\text{km}}} \times \frac{100 \cancel{\text{cm}}}{1 \cancel{\text{m}}} \times \frac{10 \text{mm}}{1 \cancel{\text{cm}}} = 3000000 \text{ mm}$$

$$360 + 3000000 = 3000360 \text{ mm}$$

9. Solution:

$$5.3 \text{ km} + 7500 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$$

$$5.3 \cancel{\text{km}} \times \frac{1000 \cancel{\text{m}}}{1 \cancel{\text{km}}} \times \frac{100 \text{cm}}{1 \cancel{\text{m}}} = 530000 \text{ cm}$$

$$7500 \cancel{\text{m}} \times \frac{100 \text{cm}}{1 \cancel{\text{m}}} = 750000 \text{ cm}$$

$$530000 + 750000 = 1280000 \text{ cm}$$

10. Solution:

$$5 \text{ m} + 3.7 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$$

$$5 \cancel{\text{m}} \times \frac{100 \cancel{\text{cm}}}{1 \cancel{\text{m}}} \times \frac{10 \text{mm}}{1 \cancel{\text{cm}}} = 5000 \text{ mm}$$

$$3.7 \cancel{\text{cm}} \times \frac{10 \text{mm}}{1 \cancel{\text{cm}}} = 37 \text{ mm}$$

$$5000 + 37 = 5037 \text{ mm}$$



11. Solution:

$$4\text{ km} + 2300\text{ cm} - 610\text{ m} = \text{_____ cm}$$

$$4\cancel{\text{ km}} \times \frac{1000\cancel{\text{ m}}}{1\cancel{\text{ km}}} \times \frac{100\cancel{\text{ cm}}}{1\cancel{\text{ m}}} \text{ cm} = 400000\text{ cm}$$

$$610\cancel{\text{ m}} \times \frac{100\text{ cm}}{1\cancel{\text{ m}}} = 61000\text{ cm}$$

$$400000 + 2300 - 61000 = 341300\text{ cm}$$

12. Solution:

$$5\text{ m} + 21\text{ cm} - 1700\text{ mm} = \text{_____ km}$$

$$5\cancel{\text{ m}} \times \frac{1\text{ km}}{1000\cancel{\text{ m}}} = \frac{5}{1000}\text{ km} = 0.005\text{ km}$$

$$21\cancel{\text{ cm}} \times \frac{1\text{ km}}{100000\cancel{\text{ cm}}} = \frac{21}{100000}\text{ km} = 0.00021\text{ km}$$

$$1700\cancel{\text{ mm}} \times \frac{1\cancel{\text{ cm}}}{10\cancel{\text{ mm}}} \times \frac{1\text{ km}}{100000\cancel{\text{ cm}}} = \frac{1700}{10 \times 100000}\text{ km} = 0.0017\text{ km}$$

$$0.005 + 0.00021 - 0.0017 = 0.00351\text{ km}$$

13. Solution:

$$5680\text{ m} + 279\text{ cm} - 1.7\text{ km} = \text{_____ mm}$$

$$5680\cancel{\text{ m}} \times \frac{1000\text{ mm}}{1\cancel{\text{ m}}} = 5680000\text{ mm}$$

$$279\cancel{\text{ cm}} \times \frac{10\text{ mm}}{1\cancel{\text{ cm}}} = 2790\text{ mm}$$

$$1.7\cancel{\text{ km}} \times \frac{100000\cancel{\text{ cm}}}{1\cancel{\text{ km}}} \times \frac{10\text{ mm}}{1\cancel{\text{ cm}}} = 1700000\text{ mm}$$

$$5680000 + 2790 - 1700000 = 3982790\text{ mm}$$

14. Solution:

$$1.5\text{ km} - 3390\text{ cm} + 670\text{ mm} = \text{_____ m}$$

$$1.5\cancel{\text{ km}} \times \frac{1000\text{ m}}{1\cancel{\text{ km}}} = 1500\text{ m}$$

$$3390\cancel{\text{ cm}} \times \frac{1\text{ m}}{100\cancel{\text{ cm}}} = \frac{3390}{100}\text{ m} = 33.9\text{ m}$$

$$670\cancel{\text{ mm}} \times \frac{1\text{ m}}{1000\cancel{\text{ mm}}} = \frac{670}{1000}\text{ m} = 0.67\text{ m}$$

$$1500 - 33.9 + 0.67 = 1466.77\text{ m}$$



15. Solution:

$$7000\text{ m} - 5.4\text{ km} + 27500\text{ mm} = \underline{\hspace{2cm}}\text{ cm}$$

$$7000\cancel{\text{ m}} \times \frac{100\text{ cm}}{1\cancel{\text{ m}}} = 700000\text{ cm}$$

$$5.4\cancel{\text{ km}} \times \frac{100000\text{ cm}}{1\cancel{\text{ km}}} = 540000\text{ cm}$$

$$27500\cancel{\text{ mm}} \times \frac{1\text{ cm}}{10\cancel{\text{ mm}}} = \frac{27500}{10}\text{ cm} = 2750\text{ cm}$$

$$700000 - 540000 + 2750 = 162750\text{ cm}$$

Practice Section C

1. Solution:

$$4750\text{ mm} = \underline{\hspace{1cm}}\text{ m} + \underline{\hspace{1cm}}\text{ cm} + \underline{\hspace{1cm}}\text{ mm}$$

$$4750\cancel{\text{ mm}} \times \frac{1\text{ m}}{1000\cancel{\text{ mm}}} = 4.750\text{ m} = 4\text{ m} + 0.75\text{ m}$$

$$0.75\cancel{\text{ m}} \times \frac{100\text{ cm}}{1\cancel{\text{ m}}} = 75\text{ cm}$$

$$4750\text{ mm} = 4\text{ m} + 75\text{ cm} + 0\text{ mm}$$

2. Solution:

$$6894220\text{ mm} = \underline{\hspace{1cm}}\text{ km} + \underline{\hspace{1cm}}\text{ m} + \underline{\hspace{1cm}}\text{ cm} + \underline{\hspace{1cm}}\text{ mm}$$

$$6894220\cancel{\text{ mm}} \times \frac{1\text{ km}}{1000000\cancel{\text{ mm}}} = 6.89422\text{ km} = 6\text{ km} + 0.89422\text{ km}$$

$$0.89422\cancel{\text{ km}} \times \frac{1000\text{ m}}{1\cancel{\text{ km}}} = 894.22\text{ m} = 894\text{ m} + 0.22\text{ m}$$

$$0.22\cancel{\text{ m}} \times \frac{100\text{ cm}}{1\cancel{\text{ m}}} = 22\text{ cm}$$

$$6894220\text{ mm} = 6\text{ km} + 894\text{ m} + 22\text{ cm} + 0\text{ mm}$$



3. Solution:

$$5m + 21cm - 1700mm + 5.5km - 2400cm = \underline{\hspace{2cm}} mm$$

$$5\cancel{m} \times \frac{1000mm}{1\cancel{m}} = 5000mm$$

$$21\cancel{cm} \times \frac{10m}{1\cancel{cm}} = 210mm$$

$$5.5\cancel{km} \times \frac{1000000mm}{1\cancel{km}} = 5500000mm$$

$$2400\cancel{cm} \times \frac{10m}{1\cancel{cm}} = 24000mm$$

$$5000 + 210 - 1700 + 5500000 - 24000 = 5479510mm$$

4. Solution:

$$(0.75km + 548m - 27500mm) - (1.5m - 1500mm + 1.75cm) = \underline{\hspace{2cm}} m$$

$$0.75\cancel{km} \times \frac{1000m}{1\cancel{km}} = 750m$$

$$27500\cancel{mm} \times \frac{1m}{1000\cancel{mm}} = 27.5m$$

$$1500\cancel{mm} \times \frac{1m}{1000\cancel{mm}} = 1.5m$$

$$1.75\cancel{cm} \times \frac{1m}{100\cancel{cm}} = 0.0175m$$

$$(750 + 548 - 27.5) - (1.5 - 1.5 + 0.0175) = 1270.5 - 0.0175 = 1270.4825m$$

5. Solution:

$$(1.5km - 1519cm) + \frac{300m}{1.25} - \left(1.125m \div \frac{1}{4} + 125cm\right) = \underline{\hspace{2cm}} km$$

$$1519\cancel{cm} \times \frac{1km}{100000\cancel{cm}} = 0.01519km$$

$$300\cancel{m} \times \frac{1km}{1000\cancel{m}} \div 1.25 = 0.24km$$

$$1.125m \div \frac{1}{4} \times \frac{1km}{1000\cancel{m}} = 0.0045km$$

$$125\cancel{cm} \times \frac{1km}{100000\cancel{cm}} = 0.00125km$$

$$(1.5 - 0.01519) + 0.24 - (0.0045 + 0.00125) = 1.48481 + 0.24 - 0.00575 = 1.71906km$$



Practice Section D

- 1.** Solution:
The conversions are all done correctly. The error is in line 3 of the solution when 21 mm is multiplied by 10 rather than being divided by 10. (21mm = 2.1 cm) Therefore, $500 + 2.1 - 1.5 = 500.6$ cm.
- 2.** Solution:
There is an error in line 2 when $4 \times 100 \times 10 = 400$ mm. It should equal 4000 mm. A second error occurs in the final line when the units are expressed as centimeters instead of millimeters.

Practice Section E

Solution:

There will be 20 'base lengths' that are equal in length to the first piece cut. If each piece is 5 cm longer than the previous, there would be $5+10+15+20\dots+95$ which totals 950 cm = 9500 mm. That would leave $24000 - 9500 = 14500$ mm to be divided into 20 equal 'base lengths'. The base length, and therefore the first length, would need to be $14500/20$ mm which is 725 mm = 0.725 m.