

# **MATHEMATICS 10-3 A**

**Mr. M Cherney**



## COURSE OUTLINE    2025-2026 A

|                             |                                           |                    |                  |
|-----------------------------|-------------------------------------------|--------------------|------------------|
| Ch 1 Unit Price, Exchange   | 11(11 1 <sup>st</sup> )-5 Classes-Lessons | 11(11) School Days | Sept 2 – Sept 16 |
| Ch 2 Income                 | 9(11 FR)-4 Classes-Lessons                | 9(11) School Days  | Sept 17 – Oct 3  |
| Ch 3 Length, Area, Volume   | 9-4 Classes-Lessons                       | 9 School Days      | Oct 6 – Oct 17   |
| Ch 4 Mass, Temp, Volume     | 9-4 Classes-Lessons                       | 9 School Days      | Oct 20 – Oct 31  |
| Ch 5 Angles, Parallel Lines | 9-4 Classes-Lessons                       | 9 School Days      | Nov 3 – Nov 17   |
| Ch 6 Similarity             | 10-4 Classes-Lessons                      | 10 School Days     | Nov 18 – Dec 1   |
| Ch 7 Trigonometry           | 11-5 Classes-Lessons                      | 11 School Days     | Dec 2 – Dec 16   |
| Course Review               | 11(12 TAL)-7 Classes-Lessons              | 11(12) School Days | Dec 17 – Jan 15  |
| In Class Final Part Ch 1/2  | 1-1 Classes-Lessons                       | 1 School Days      | Jan 16 – Jan 16  |
|                             | 80(83)-38 Classes-Lessons                 | 80(83) School Days |                  |

### Final

|            |             |
|------------|-------------|
| Final Exam | Jan 19 – 26 |
|------------|-------------|

## COURSE MARKING 2025-2026 A

| Heading                     | Date | Weight | Points Earned (%) | Percent (%) |
|-----------------------------|------|--------|-------------------|-------------|
| <b>Course Work</b>          |      | 80     |                   |             |
| <b>Tests</b>                |      | 95     |                   |             |
| Ch 1 Unit Price, Exchange   |      | 15     |                   |             |
| Ch 2 Income                 |      | 14     |                   |             |
| Ch 3 Length, Area, Volume   |      | 14     |                   |             |
| Ch 4 Mass, Temp, Volume     |      | 14     |                   |             |
| Ch 5 Angles, Parallel Lines |      | 14     |                   |             |
| Ch 6 Similarity             |      | 14     |                   |             |
| Ch 7 Trigonometry           |      | 15     |                   |             |
| <b>Homework</b>             |      | 5      |                   |             |
| <b>Final Exam</b>           |      | 20     |                   |             |
| <b>Final Grade</b>          |      |        |                   |             |

**Daily Homework** for each assignment is due the day the day the chapter test is written when your workbooks are collected. It will be marked for completeness, 1 mark for each completed question out of the total assigned questions. Each question number of your work is to be highlighted once (**not** abc parts) with a marker.

**Online Tutorials** will be used for individualized instruction based on the MathWorks 11 Workbook at: <https://sites.google.com/a/share.epsb.ca/mr-trimble-s-math-site/Home> (can also google: mr trimble math courses or mr trimble math videos and resources – it should be the first site that comes up) or <https://sites.google.com/a/share.epsb.ca/mr-trimble-s-math-site/math-10-3>

# Math 10-3 Formula Sheet

## Linear Measurement

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ yd} = 3 \text{ ft}$$

$$1 \text{ mi} = 1760 \text{ yd}$$

$$1 \text{ acre} = 4840 \text{ sq yd}$$

$$1 \text{ m} = 1000 \text{ mm}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ km} = 1000 \text{ m}$$

### Imperial to SI

$$1 \text{ in} \doteq 2.54 \text{ cm}$$

$$1 \text{ ft} \doteq 0.31 \text{ m}$$

$$1 \text{ yd} \doteq 0.91 \text{ m}$$

$$1 \text{ mi} \doteq 1.61 \text{ km}$$

$$1 \text{ acre} \doteq 0.4047 \text{ ha}$$

### SI to Imperial

$$1 \text{ mm} \doteq 0.039 \text{ in}$$

$$1 \text{ cm} \doteq 0.39 \text{ in}$$

$$1 \text{ m} \doteq 1.09 \text{ yd}$$

$$1 \text{ km} \doteq 0.62 \text{ mi}$$

$$1 \text{ ha} \doteq 2.4711 \text{ acres}$$

### In a circle

$$\text{diameter} = \text{radius} \times 2$$

$$\text{circumference} = \pi \times \text{diameter}$$

$$\text{circumference} = \pi \times \text{radius} \times 2$$

## Area

$$\text{Triangle: } A = \frac{1}{2}(b \times h)$$

$$\text{Circle: } A = \pi r^2$$

$$\text{Trapezoid: } A = \frac{1}{2}(\text{sum of parallel lengths}) \times \text{height}$$

$$\text{Parallelogram: } A = \text{base} \times \text{height}$$

### Imperial to SI

$$1 \text{ sq in} = 6.4516 \text{ cm}^2$$

$$1 \text{ sq ft} = 0.0929 \text{ m}^2$$

$$1 \text{ sq yd} = 0.8361 \text{ m}^2$$

$$1 \text{ sq mi} = 2.5900 \text{ km}^2$$

### SI to Imperial

$$1 \text{ cm}^2 = 0.1550 \text{ sq in}$$

$$1 \text{ m}^2 = 10.7639 \text{ sq ft}$$

$$1 \text{ km}^2 = 0.3861 \text{ sq mi}$$

## Mass

### SI Mass

$$1 \text{ t} = 1000 \text{ kg}$$

$$1 \text{ kg} = 1000 \text{ g}$$

$$1 \text{ g} = 0.001 \text{ mg}$$

### Imperial (US)

$$1 \text{ lb} = 16 \text{ oz}$$

$$1 \text{ T} = 2000 \text{ lb}$$

### Imperial (US) to SI Mass

$$1 \text{ oz} = 28.35 \text{ g}$$

$$1 \text{ lb} = 0.45 \text{ kg}$$

$$1 \text{ T} = 0.91 \text{ t}$$

### SI to Imperial (US) Mass

$$1 \text{ g} = 0.04 \text{ oz}$$

$$1 \text{ kg} = 2.21 \text{ lb}$$

$$1 \text{ t} = 1.10 \text{ T}$$

## Surface Area

$$\text{Closed cone: } SA = \pi r^2 + \pi rs$$

## Prefixes

penta means 5

hexa means 6

hepta means 7

octa means 8

nona means 9

deca means 10

**Volume****SI Volume**

$$1 \text{ hm}^3 = 1\,000\,000 \text{ m}^3$$

$$1 \text{ dam}^3 = 1000 \text{ m}^3$$

$$1 \text{ m}^3 = 1\,000\,000 \text{ cm}^3$$

$$1 \text{ cm}^3 = 0.000\,001 \text{ m}^3$$

$$1 \text{ dm}^3 = 0.001 \text{ m}^3$$

$$1 \text{ km}^3 = 1\,000\,000\,000 \text{ m}^3$$

$$1 \text{ cm}^3 = 1 \text{ mL}$$

**Imperial Volume**

$$1 \text{ cu ft} = 1728 \text{ cu in}$$

$$1 \text{ cu yd} = 27 \text{ cu ft}$$

**Imperial to SI Volume**

$$1 \text{ cu in} = 16.39 \text{ cm}^3$$

$$1 \text{ cu ft} = 28.32 \text{ dm}^3$$

$$1 \text{ cu ft} = 0.02832 \text{ m}^3$$

$$1 \text{ cu yd} = 0.76 \text{ m}^3$$

$$1 \text{ cu mi} = 4.17 \text{ km}^3$$

**SI to Imperial Volume**

$$1 \text{ cm}^3 = 0.06 \text{ cu in}$$

$$1 \text{ m}^3 = 1.31 \text{ cu yd}$$

$$1 \text{ km}^3 = 0.24 \text{ cu mi}$$

**Temperature**

$$F = \frac{9}{5}C + 32$$

$$C = \frac{5}{9}(F - 32)$$

**Capacity****SI Capacity**

$$1 \text{ kL} = 1000 \text{ L}$$

$$1 \text{ hL} = 100 \text{ L}$$

$$1 \text{ daL} = 10 \text{ L}$$

$$1 \text{ dL} = 0.1 \text{ L}$$

$$1 \text{ cL} = 0.01 \text{ L}$$

$$1 \text{ mL} = 0.001 \text{ L}$$

**Imperial Capacity (US)**

$$1 \text{ fl oz} = 2 \text{ T (tablespoons)}$$

$$1 \text{ c} = 8 \text{ fl oz}$$

$$1 \text{ pt} = 2 \text{ c}$$

$$1 \text{ qt} = 2 \text{ pt}$$

$$1 \text{ gal} = 4 \text{ qt}$$

**Imperial to SI Capacity**

$$1 \text{ fl oz} = 29.57 \text{ mL}$$

$$1 \text{ pt} = 0.47 \text{ L}$$

$$1 \text{ qt} = 0.95 \text{ L}$$

$$1 \text{ gal} = 3.79 \text{ L}$$

**SI to Imperial Capacity**

$$1 \text{ mL} = 0.03 \text{ fl oz}$$

$$1 \text{ L} = 2.11 \text{ pt}$$

$$1 \text{ L} = 1.06 \text{ qt}$$

$$1 \text{ L} = 0.26 \text{ gal}$$

**Right Triangles****Pythagorean Theorem**

$$a^2 + b^2 = c^2$$

**Ratios of Sides**

$$\sin \angle A = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos \angle A = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan \angle A = \frac{\text{opposite}}{\text{adjacent}}$$

# MATHEMATICS 10C FORMULA SHEET

Graphing Calculator Window Format

$$x[x_{\min}, x_{\max}, x_{\text{sc1}}] \quad y[y_{\min}, y_{\max}, y_{\text{sc1}}]$$

## Conversion Tables

### Imperial

1 inch = 1"=1 in  
1 foot = 1'=1 ft  
1 yard = 1 yd  
1 mile = 1 mi

1 ft = 12 in  
1 yd = 3 ft = 36 in  
1 mi = 1760 yd = 5280 ft

### Metric

1 millimetre = 1 mm  
1 centimetre = 1 cm  
1 metre = 1 m  
1 kilometre = 1 km

1 cm = 10 mm  
1 m = 100 cm = 1000 mm  
1 km = 1000 m

### Cross Over

1 in = 2.54 cm  
1 ft = 30 cm = 0.3 m  
1 yd = 91.44 cm = 0.9144 m  
1 mi = 1.6 km

1 mm = 4/100 in = 0.04 in  
1 cm = 4/10 in = 0.4 in  
1 m = 39 in = 3 1/4 ft = 3.25 ft  
1 km = 0.6 mi

## Surface Area

*Prisms*  $SA = A_L + B + B$

*Pyramids*  $SA = A_L + B$

*Regular Pyramids and Cones*  $SA = \frac{1}{2}(s)(P) + B$

*Cones*  $SA = \pi rs + \pi r^2$

*Cylinders*  $SA = 2\pi rh + 2\pi r^2$

*Spheres*  $SA = 4\pi r^2$

*Hemispheres*  $SA = 3\pi r^2$

## Volume

*Prisms*  $V = Bh$

*Pyramids*  $V = \frac{1}{3}Bh$

*Cones*  $V = \frac{1}{3}\pi r^2 h$

*Cylinders*  $V = \pi r^2 h$

*Spheres*  $V = \frac{4}{3}\pi r^3$

*Hemispheres*  $V = \frac{2}{3}\pi r^3$

## Trigonometry

SOH CAH TOA

$$\sin A = \frac{\text{opp}}{\text{hyp}} \quad \cos A = \frac{\text{adj}}{\text{hyp}} \quad \tan A = \frac{\text{opp}}{\text{adj}}$$

*Pythagoras*

$$c^2 = a^2 + b^2$$

*Angle Sum*

$$\angle A + \angle B + \angle C = 180^\circ$$

## Polynomials

*Factoring*

Prime Factorization  
Common Factor  
Product Sum Factoring  
Factor by Grouping (Decomposition)  
Perfect Trinomial Squares  
Difference of Squares

*Expanding*

Distributive Property  
FOIL  
Binomial Squares  
Conjugates

## Radicals and Powers

$$x^a \times x^b = x^{a+b}$$

$$x^a \div x^b = x^{a-b}$$

$$x^{-a} = \frac{1}{x^a} \text{ or } \left(\frac{x}{y}\right)^{-a} = \left(\frac{y}{x}\right)^a, \quad x, y \neq 0$$

$$x^a \div x^a = x^{a-a} = x^0 = 1, \quad x \neq 0$$

$$(xy)^a = x^a y^a$$

$$\left(\frac{x}{y}\right)^a = \frac{x^a}{y^a}, \quad y \neq 0$$

$$(x^a)^b = x^{ab}$$

$$x^{\frac{a}{b}} = \left(\sqrt[b]{x}\right)^a = \sqrt[b]{x^a} = x^{a \times \frac{1}{b}}$$

## Linear Relations

$$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

## Linear Functions

*Slope Intercept Form*

$$y = mx + b$$

*Slope Point Form*

$$y - y_1 = m(x - x_1)$$

*Two Point Form*

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$$

*Two Intercept Form*

$$\frac{x}{a} + \frac{y}{b} = 1$$

*General Form*

$$Ax + By + C = 0$$

*Standard Form*

$$Ax + By = -C$$