MATHEMATICS 10-3 B

Mr. M Cherney

COURSE OUTLINE 2023-2024 A

Ch 1 Unit Price, Exchange	10(11 OE)-5 Classes-Lessons	10(11) School Days	Jan 31 – Feb 15
Ch 2 Income	9-4 Classes-Lessons	9 School Days	Feb 16 – Mar 6
Ch 3 Length, Area, Volume	9-4 Classes-Lessons	9 School Days	Mar 7– Mar 20
Ch 4 Mass, Temp, Volume	9-4 Classes-Lessons	9 School Days	Mar 21 – Apr 16
Ch 5 Angles, Parallel Lines	9-4 Classes-Lessons	9 School Days	Apr 17 – Apr 29
Ch 6 Similarity	9-4 Classes-Lessons	9 School Days	Apr 30 – May 10
Ch 7 Trigonometry	10(12 OE)-5 Classes-Lessons	10(12) School Days	May 13 – May 30
Course Review	11-7 Classes-Lessons	11 School Days	May 31 – Jun 17
In Class Final Part Ch 1/2	1-1 Classes-Lessons	1 School Days	Jun 18 – Jun 18
	77(80)-38 Classes-Lessons	77(80) School Days	

Final

Final Exam	Jun 19 – 25

COURSE MARKING 2023-2024 A

Heading	Date	Weight	Points Earned (%)	Percent (%)
Course Work		80		
Tests		90		
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		
Homework		10		
Final Exam		20		
Final Grade				

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)

Math 10-3 Formula Sheet

Linear Measurement

1 ft = 12 in
1 yd = 3 ft
1 mi = 1760 yd
1 acre = 4840 sq yd

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

In a circle

diameter = radius × 2
circumference = $\pi \times$ diameter
circumference = $\pi \times$ radius × 2

Imperial to SI

1 in $\doteq$ 2.54 cm
1 ft $\doteq$ 0.31 m
1 yd $\doteq$ 0.91 m
1 mi $\doteq$ 1.61 km
1 acre $\doteq$ 0.4047 ha

SI to Imperial

1 mm $\doteq$ 0.039 in
1 cm $\doteq$ 0.39 in
1 m $\doteq$ 1.09 yd
1 km $\doteq$ 0.62 mi
1 ha $\doteq$ 2.4711 acres

Area

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

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

Circle: $A = \pi r^2$

Parallelogram: $A =$ base × height

Imperial to SI

1 sq in = 6.4516 cm^2
1 sq ft = 0.0929 m^2
1 sq yd = 0.8361 m^2
1 sq mi = 2.5900 km^2

SI to Imperial

1 cm^2 = 0.1550 sq in
1 m^2 = 10.7639 sq ft
1 km^2 = 0.3861 sq mi

Mass

SI Mass

1 t = 1000 kg
1 kg = 1000 g
1g = 0.001 mg

Imperial (US)

1 lb = 16 oz
1T = 2000 lb

Imperial (US) to SI Mass

1 oz = 28.35 g
1 lb = 0.45 kg
1 T = 0.91 t

SI to Imperial (US) Mass

1 g = 0.04 oz
1 kg = 2.21 lb
1 t = 1.10 T

Surface Area

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 hm^3 = 1 000 000 m^3
1 dam^3 = 1000 m^3
1m^3 = 1 000 000 cm^3
1 cm^3 = 0.000 001 m^3
1 dm^3 = 0.001 m^3
1 km^3 = 1 000 000 000 m^3
1 cm^3 = 1 mL

Imperial Volume

1 cu ft = 1728 cu in
1 cu yd = 27 cu ft

Imperial to SI Volume

1 cu in = 16.39 cm^3
1 cu ft = 28.32 dm^3
1 cu ft = 0.02832 m^3
1 cu yd = 0.76 m^3
1 cu mi = 4.17 km^3

SI to Imperial Volume

1 cm^3 = 0.06 cu in
1 m^3 = 1.31 cu yd
1 km^3 = 0.24 cu mi

Temperature

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

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

Capacity

SI Capacity

1 kL = 1000 L
1 hL = 100L
1 daL = 10 L
1 dL =0.1 L
1 cL = 0.01 L
1 mL = 0.001 L

Imperial Capacity (US)

1 fl oz = 2 T (tablespoons)
1 c = 8 fl oz
1 pt = 2 c
1 qt = 2 pt
1 gal = 4 qt

Imperial to SI Capacity

1 fl oz = 29.57 mL
1 pt = 0.47 L
1 qt = 0.95 L
1 gal = 3.79 L

SI to Imperial Capacity

1 mL = 0.03 fl oz
1 L = 2.11 pt
1 L = 1.06 qt
1 L = 0.26 gal

Right Triangles

Pythagorean Theorem

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

Ratios of Sides

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

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

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

MATHEMATICS 10C FORMULA SHEET

Graphing Calculator Window Format $x[x_{\min}, x_{\max}, x_{scl}]$ $y[y_{\min}, y_{\max}, y_{scl}]$

Conversion Tables

Imperial	*Metric*
1 inch = 1"=1 in	1 millimetre = 1 mm
1 foot = 1'=1 ft	1 centimetre = 1 cm
1 yard = 1 yd	1 metre = 1 m
1 mile = 1 mi	1 kilometre = 1 km
1 ft = 12 in	1 cm = 10 mm
1 yd = 3 ft = 36 in	1 m = 100 cm = 1000 mm
1 mi = 1760 yd = 5280 ft	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 ¼ 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

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

Pythagoras

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

Angle Sum

$$\angle A + \angle B + \angle C = 180°$$

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

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

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

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

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

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

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

$$\left(x^a\right)^b = x^{ab}$$

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

Linear Relations

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

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

$$Ax + By = -C$$