

MATHEMATICS 20-3

Mr. M Cherney

COURSE OUTLINE 2023-2024

Ch 1 Slope, Rate	9(10 1 st)-3 Classes-Lessons	9(10) School Days	Sept 5 – Sept 18
Ch 2 Graphs	12(14 1 st /FR)-4 Classes-Lessons	12(14) School Days	Sept 19 – Oct 10
Ch 3 Area, Volume, Capacity	13-4 Classes-Lessons	13 School Days	Oct 11– Oct 30
Ch 4 Trigonometry	7-2 Classes-Lessons	7 School Days	Oct 31 – Nov 8
Ch 5 Scale	10-3 Classes-Lessons	10 School Days	Nov 9 – Nov 23
Ch 6 Finance	12-4 Classes-Lessons	12 School Days	Nov 24 – Dec 12
Ch 7 Budgets	10(11 TAL)-3 Classes-Lessons	10(11) School Days	Dec 13 – Jan 11
Course Review	7-7 Classes-Lessons	7 School Days	Jan 12 – Jan 22
In Class Final Part Ch 1/2	1-1 Classes-Lessons	1 School Days	Jan 23 – Jan 23
	81(85)-31 Classes-Lessons	81(85) School Days	

Final

Final Exam			Jan 24 – 29
------------	--	--	-------------

COURSE MARKING 2023-2024

Heading	Date	Weight	Points Earned (%)	Percent (%)
Course Work		75		
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		25		
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 20-3 FORMULA SHEET

CHAPTER 1

$$\text{slope} = \frac{\text{rise}}{\text{run}} \quad \tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} \quad a^2 + b^2 = c^2$$

$$\% \text{ grade} = \frac{\text{rise}}{\text{run}} \times 100$$

CHAPTER 3

$$A_{\text{SQUARE}} = l \times w \quad V_{\text{C}} = l \times w \times h$$

$$A_{\text{CIRCLE}} = \pi r^2 \quad V_{\text{C}} = \pi r^2 h$$

$$A_{\text{TRIANGLE}} = \frac{bh}{2} \quad V_{\text{CONE}} = \frac{\pi r^2 h}{3}$$

$$SA_{\text{SPHERE}} = 4\pi r^2 \quad V_{\text{PYRAMID}} = \frac{bh}{3}$$

$$V_{\text{SPHERE}} = \frac{4}{3} \pi r^3$$

CHAPTER 4

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

$$\cos \theta = \frac{\text{adj}}{\text{hyp}} \quad a^2 + b^2 = c^2$$

CHAPTER 6

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

Labels for the formula above:
 FINAL VALUE → A
 PRINCIPLE → P
 INTEREST RATE / COMPOUNDING PERIOD → $\frac{r}{n}$
 COMPOUNDING PERIOD × TERM → nt

$$I = Prt$$

Labels for the formula below:
 INTEREST → I
 PRINCIPLE → P
 RATE → r
 TERM → t

CHAPTER 7

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

Labels for the formula above:
 FINAL VALUE → A
 PRINCIPLE → P
 INTEREST RATE / COMPOUNDING PERIOD → $\frac{r}{n}$
 COMPOUNDING PERIOD × TERM → nt

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

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 $SA = 3\pi r^2$

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

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

$$Ax + By = -C$$