MATHEMATICS 20-4 A

Mr. M Cherney

Ch 1 Wholes, Decimals	8-6 Classes-Lessons	8 School Days	Jan 28 – Feb 6
Ch 2 Fractions	7(8 OE)-5 Classes-Lessons	7(8) School Days	Feb 9 – Feb 25
Ch 3 Data	8-6 Classes-Lessons	8 School Days	Feb 26 – Mar 9
Ch 4 Relationships	7-5 Classes-Lessons	7 School Days	Mar 10 – Mar 19
Ch 5 Percents	10-8 Classes-Lessons	10 School Days	Mar 20 – Apr 17
Ch 6 Measurement	7-5 Classes-Lessons	7 School Days	Apr 20 – Apr 28
Ch 7 Integers	6-5 Classes-Lessons	6 School Days	Apr 29 – May 6
Ch 8 Temperature, Capacity	7-6 Classes-Lessons	7 School Days	May 7 – May 19
Ch 9 Geometry	8(10 OE)-7 Classes-Lessons	8(10) Schools Days	May 20 – Jun 2
Course Review	6-9 Classes-Lessons	6 School Days	Jun 3 – Jun 11
In Class Final Part 1	1-1 Classes-Lessons	1 School Days	Jun 12 – Jun 12
	75(78)-54 Classes-Lessons	75(78) School Days	

Final

Final Exam   Jun 15 – 23

COURSE MARKING   2025-2026 A

Heading	Date	Weight	Points Earned (%)	Percent (%)
Course Work		80		
Tests		95		
Ch 1 Wholes, Decimals		12		
Ch 2 Fractions		11		
Ch 3 Data		11		
Ch 4 Relationships		11		
Ch 5 Percents		11		
Ch 6 Measurement		11		
Ch 7 Integers		11		
Ch 8 Temperature, Capacity		11		
Ch 9 Geometry		11		
Homework		5		
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.

Math 10-4 Formula Sheet

Unit Relationships and Formulas

Metric Unit Relationships

Length	Mass	Capacity	Volume
kilometre (km) 1 km = 1000 m	tonne (t) 1 t = 1000 kg	kilolitre (kL) 1 kL = 1000 L	1 m³ = 1 kL 1 m³ = 1000 L
metre (m) 1 m = 100 cm 1 m = 1000 mm	kilogram (kg) 1 kg = 1000 g	litre (L) 1 L = 1000 mL	1 cm³ = 1 mL
centimetre (cm) 1 cm = 10 mm	gram (g) 1 g = 1000 mg		
millimetre (mm)	milligram (mg)	millilitre (mL)	

Imperial Unit Relationships

Length	Mass	Capacity
mile (mi) 1 mi = 1760 yd 1 mi = 5280 ft	ton (T) 1 T = 2000 lb	gallon (gal) 1 gal = 4 qt 1 gal = 16 c
yard (yd) 1 yd = 3 ft 1 yd = 36 in.	pound (lb) 1 lb = 16 oz	quart (qt) 1 qt = 4 c 1 qt = 32 fl oz
foot (ft or ') 1 ft = 12 in.		cup (c) 1 c = 8 fl oz
inch (in. or ")		fluid ounce (fl oz) 1 fl oz = 2 tbsp
		tablespoon (tbsp) 1 tbsp = 3 tsp
		teaspoon (tsp)

Imperial Unit to Metric Unit Relationships

Length	Mass	Capacity
1 mi ≐ 1.61 km	1 T ≐ 0.91 t	1 gal ≐ 3.79 L
1 yd ≐ 0.91 m	1 lb ≐ 0.45 kg 1 lb ≐ 450 g	1 qt ≐ 0.95 L
1 ft ≐ 0.31 m	1 oz ≐ 28.35 g	1 c ≐ 250 mL
1 in. = 2.54 cm		1 fl oz ≐ 29.57 mL
		1 tbsp ≐ 15 mL
		1 tsp ≐ 5 mL

Metric Unit to Imperial Unit Relationships

Length	Mass	Capacity
1 km ≐ 0.62 mi	1 t ≐ 1.10 T	1 L ≐ 0.26 gal
1 m ≐ 1.09 yd 1 m ≐ 3.27 ft	1 kg ≐ 2.21 lb 1 kg ≐ 35.27 oz	1 L ≐ 1.06 qt
1 cm ≐ 0.39 in.	1 g ≐ 0.04 oz	1 mL ≐ 0.03 fl oz
1 mm ≐ 0.039 in.		

Polygon Perimeter Formulas

regular polygon	$P = ns$, where P is perimeter, n is number of sides, s is side length
rectangle	$P = 2l + 2w$, where P is perimeter, l is length, w is width
square	$P = 4s$, where P is perimeter, s is side length
triangle	$P = a + b + c$, where P is perimeter, $a, b,$ and c are side lengths

Polygon Area Formulas

square	$A = s \times s$, where A is area, s is side length
triangle	$A = b \times h \div 2$, where A is area, b is base, h is height
rectangle	$A = l \times w$, where A is area, l is length, w is width
parallelogram	$A = b \times h$, where A is area, b is base, h is height

Circle Formulas

$d = 2r$, where d is diameter, r is radius
$C = \pi d$, where C is circumference, d is diameter
$C = 2\pi r$, where C is circumference, r is radius
$A = \pi \times r \times r$, where A is area, r is radius

Math 10-3 Formula Sheet

Linear Measurement

1 ft = 12 in	**Imperial to SI**	**SI to Imperial**
1 yd = 3 ft	1 in $\doteq$ 2.54 cm	1 mm $\doteq$ 0.039 in
1 mi = 1760 yd	1 ft $\doteq$ 0.31 m	1 cm $\doteq$ 0.39 in
1 acre = 4840 sq yd	1 yd $\doteq$ 0.91 m	1 m $\doteq$ 1.09 yd
	1 mi $\doteq$ 1.61 km	1 km $\doteq$ 0.62 mi
1 m = 1000 mm	1 acre $\doteq$ 0.4047 ha	1 ha $\doteq$ 2.4711 acres
1 m = 100 cm		
1 km = 1000 m		

In a circle

diameter = radius × 2

circumference = π × diameter

circumference = π × radius × 2

Area

Triangle: $A = \frac{1}{2}(b \times h)$ **Circle:** $A = \pi r^2$

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

Imperial to SI	**SI to Imperial**
1 sq in = 6.4516 cm^2	1 cm^2 = 0.1550 sq in
1 sq ft = 0.0929 m^2	1 m^2 = 10.7639 sq ft
1 sq yd = 0.8361 m^2	1 km^2 = 0.3861 sq mi
1 sq mi = 2.5900 km^2	

Mass

SI Mass	**Imperial (US)**	**Imperial (US) to SI Mass**	**SI to Imperial (US) Mass**
1 t = 1000 kg	1 lb = 16 oz	1 oz = 28.35 g	1 g = 0.04 oz
1 kg = 1000 g	1 T = 2000 lb	1 lb = 0.45 kg	1 kg = 2.21 lb
1 g = 0.001 mg		1 T = 0.91 t	1 t = 1.10 T

Surface Area

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

Prefixes

penta means 5	octa means 8
hexa means 6	nona means 9
hepta means 7	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 cu ft = 1728 cu in
1 cu yd = 27 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 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

$$\sin \angle A = \frac{opposite}{hypotenuse} \qquad \cos \angle A = \frac{adjacent}{hypotenuse} \qquad \tan \angle A = \frac{opposite}{adjacent}$$

MATHEMATICS 10C FORMULA SHEET

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

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 ¼ ft = 3.25 ft
1 km = 0.6 mi

Surface Area

Prisms $\qquad SA = A_L + B + B$
Pyramids $\qquad SA = A_L + B$

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

Cones $\qquad SA = \pi r s + \pi r^2$

Cylinders $\qquad SA = 2\pi r h + 2\pi r^2$

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

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

Volume

Prisms $\qquad V = Bh$

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

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

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

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

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

Trigonometry

SOH CAH TOA

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

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

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

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

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

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

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

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

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

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

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

$$Ax + By = -C$$