

Chp 1. Conversions between Metric and Imperial Units

1. Convert each measurement to the nearest tenth.

a) 16 in = _____ cm

b) 5 yd = _____ m

c) 6 mi = _____ km

d) 19 m = _____ ft

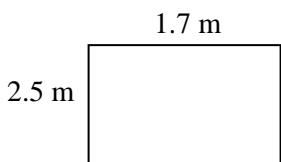
e) 150 km = _____ mi

f) 10 lb = _____ kg

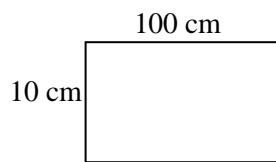
2. Convert Between SI Units for Area

Determine the area of each rectangle for the given square unit

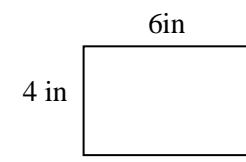
a) area: _____ cm^2



b) area: _____ ft^2



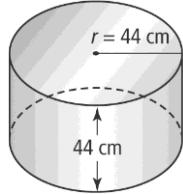
c) area: _____ mm^2



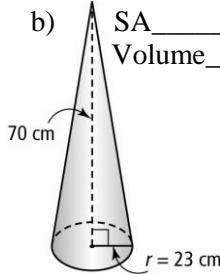
Chp 2. Surface Area and Volume

1. Find the surface area and volume for each 3-D figure.

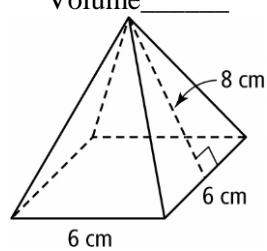
a) SA _____
Volume _____



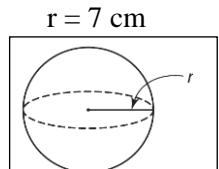
b) SA _____
Volume _____



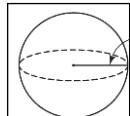
c) SA _____
Volume _____



d) SA _____
Volume _____



2. The surface area of a sphere is 459 cm^2 . Find the diameter.



Chp 3. Trigonometry: SOH-CAH-TOA

1. Solve the following.

a) $\tan 72^\circ =$ b) $\sin 42^\circ =$ c) $\cos 68^\circ =$

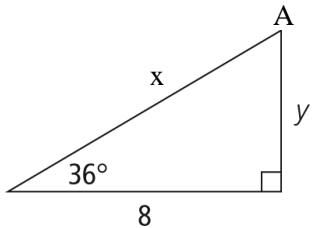
d) $\tan A = 2.580$ e) $\sin A = 0.4384$ f) $\cos A = 0.2079$

2. Find the unknown values.

$\angle A =$ _____

$x =$ _____

$y =$ _____



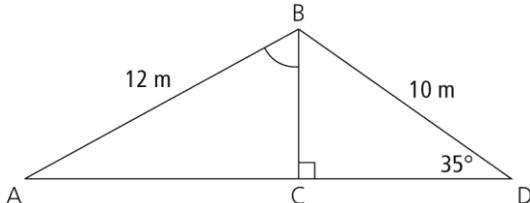
3. Solve the following angles and lengths.

$\angle ABC =$ _____

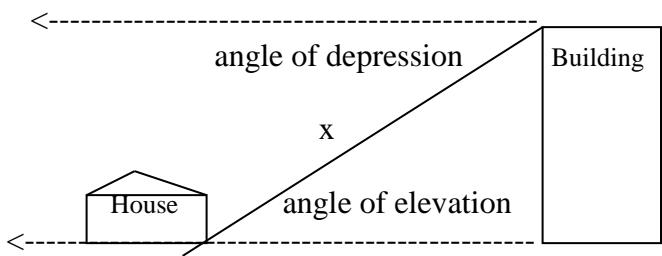
$\angle A =$ _____

$BC =$ _____

$AD =$ _____



4. Determine the height of the building if the angle of depression is 40° . The building is 12 feet from the house.
horizontal



Chp 4. Exponents and Radicals

1. Determine whether each of the following is a perfect square, perfect cube, both or neither.

a) 196 _____ b) 81 _____ c) 343 _____

2. Determine the prime factorization for each value.

a) 200 _____ b) 729 _____

3. Evaluate.

a) $\sqrt{289}$

b) $\sqrt[3]{5832}$

4. Convert from a power to a radical

a) $64^{1/2}$

b) $16^{3/4}$

c) $(8x^2)^{1/3}$

5. Convert from a Radical to a Power.

a) $\sqrt[4]{4^3}$

b) $\sqrt[5]{3^4}$

c) $\sqrt{y^3}$

6. Convert Mixed Radicals to Entire Radicals

a) $5\sqrt{11}$

b) $2\sqrt[3]{5}$

c) $1.5\sqrt[3]{6}$

7. Convert Entire Radicals to Mixed Radicals

a) $\sqrt{27}$

b) $\sqrt{50}$

c) $\sqrt[4]{80}$

8. Write each expression with positive exponents.

a) $3c^{-4}$

b) $\left(\frac{4}{7}\right)^{-2}$

c) $\frac{2^{-3}}{3^{-2}}$

d) $-5x^{-3}y^{-2} =$

9. Simplify each expression. State the answer using positive exponents.

a) $[(4)(2^{-3})]^{-2}$

b) $(-3m^2n)(-4m^4n^{-2})$

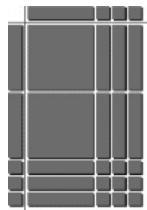
c) $\left(\frac{6mn^3}{4m^2n}\right)^2$

d)
$$\frac{\left(4x^{\frac{1}{3}}\right)^{\frac{1}{2}}(9x)^{-\frac{3}{2}}}{(27x)^{-\frac{1}{3}}}$$

e)
$$\frac{\left(q^{-\frac{2}{3}}\right)\left(q^{\frac{1}{3}}\right)}{q^{\frac{4}{3}}}$$

Chp 5. Polynomials

1. What product does the diagram below represent? Assume all tiles are positive.



2. Find the product .

a) $(x - 3)(2x + 1)$ b) $(5m - 1)(2m - 3)$ c) $(x + 2)(2x^2 - 5x + 1)$

d) $(x + 14)(x - 14)$ e) $(y + 10)^2$ f) $(8 - m)^2$

3. Factor the polynomials.

a) $15x^2 + 10x^2$ b) $7a^2b - 28ab + 14ab^2$

c) $3x(x - 4) + 5(x - 4)$ d) $y^2 + 8xy + 2y + 16x$

e) $x^2 + 4x + 6$ f) $x^2 - 29x + 28$

g) $3x^2 + 2x + 4$ h) $6x^2 - 5xy + y^2$

4. Factor these special polynomials: Difference of Squares and Perfect Squares

a) $x^2 - 9$

b) $25a^2 - 16c^2$

c) $x^2 - 6x + 9$

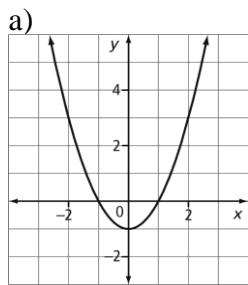
d) $2x^2 - 44x + 242$

e) $16x^2 - 4y^2$

f) $9x^3 - 36x$

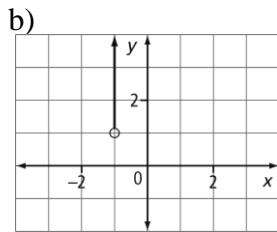
Chp 6. Relations and Functions

1. Use set notation to determine the domain and range of each relation.



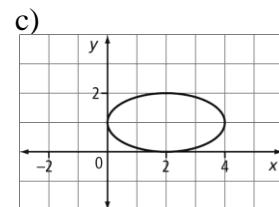
Domain:

Range:



Domain:

Range:



Domain:

Range:

2. For the function $f(x) = 3x + 7$, determine

a) $f\left(\frac{1}{3}\right)$

b) $f(-2)$

c) x if $f(x) = 34$

3. For the function $g(x) = \frac{1}{4}x + \frac{3}{4}$, determine

a) $g(5)$

b) $g(-3)$

c) x if $g(x) = -\frac{3}{2}$

4. Use the slope formula to determine the slope of the line passing through each pair of points.

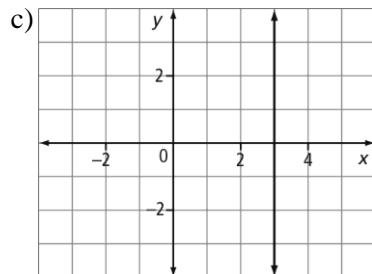
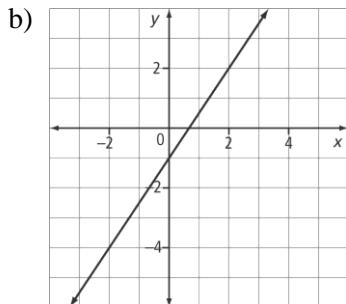
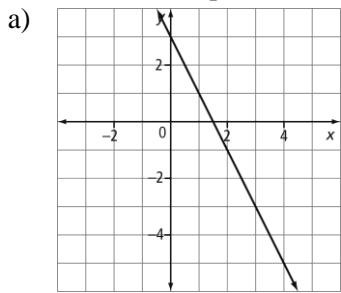
a) A(2, -1), B(3, 4)

b) C(0, 7), D(-3, 7)

c) G(4, -2), H(4, -5)

Chp 7. Linear Equations and Graphs

1. Determine the equation of each line.



2. Determine the slope and y-intercept of each line.

a) $4x + 2y = 12$

b) $3x - 2y - 600 = 0$

3. Given the equation $y = 4x + b$, and a point on the graph of a line, find b .

a) $(2, 4)$

b) $(-3, 7)$

4. Convert slope-intercept form to the General Form.

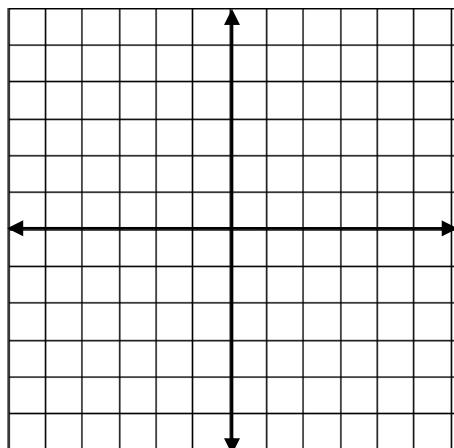
a) $y = -\frac{2}{3}x + 6$

b) $y = \frac{3}{4}x - 2$

5. Given the following equation, find the x-intercept and y-intercept. Then graph each equation on the grid.

a) $y = 7x + 9$

b) $4x - 6y - 12 = 0$



6. Write the equation of a line, given a point on the line and the slope, m .

a) Given $(-2, 5)$ and slope $= -3$

b) Given $(3, -4)$ and slope $= 2$

7. State whether the lines in each pair are parallel, perpendicular or neither.

a) $y = 4x + 3$
 $y = 4x - 5$

b) $y = 3x - 6$
 $y = -2/3x + 4$

c) $y = 2x + 6$
 $6x + 3y + 3 = 0$

8. Write an equation perpendicular to $y = 3x - 4$ and passes through (6, 5)

9. Write an equation perpendicular to: $2x - y + 4 = 0$ and passes through (1, -6)

Chp 8. Solving Systems of Linear Equations Graphically

1. Is the given point a solution to the system of linear equations? Justify your answer.

a) $y = 5x + 13$ (4, 7)
 $y = -7x - 35$

b) $4x - 5y = 20$ (-5, -8)
 $x + 3y = -29$

2. Predict the number of solutions for each system of linear equations. Justify your answers.

a) $y = 5x - 1$
 $y = 4x + 3$

b) $2x + 3y = 20$
 $6x - y = 20$

c) $x - 5y = 1$
 $-x + 5y = 1$

3. In the system of linear equations $y = 8x + 5$ and $y = 8x + b$, what values of b will result in a system that has

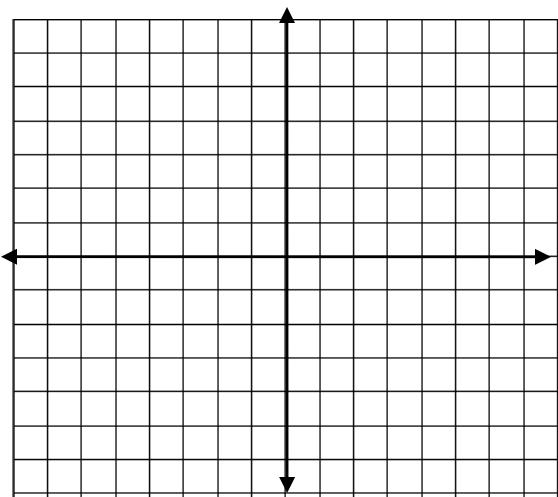
a) **no** solution?

b) an **infinite** number of solutions?

4. Graph the system of linear equations on the grid.

Determine the solution to the system.

$$\begin{aligned}3x + 4y &= 17 \\x - 2y &= -1\end{aligned}$$



Chp 9. Solving Systems of Linear Equations Algebraically

1. Solve by **substitution**.

a) $y = -5x - 8$

$y = 4x + 1$

b) $x + y = 9$

$-10x + 6y = 6$

c) $\frac{x}{2} + \frac{y}{3} = 6$

$3x - 2y = 12$

2. Solve by **elimination**.

a) $5 = 6x + 2y$

$2y = x + 5$

b) $3x + 2y = 0$

$8x + 7y = 5$

c) $\frac{1}{2}x - \frac{3}{2}y = -4$

$x + 7y = 12$

3. A small plane took 3 hours to fly 960 km from Ottawa to Halifax with a tailwind. On the return trip, flying into the wind, the plane took 4 hours. Find the wind speed and the speed of the plane in still air.

Equation 1: _____

Equation 2: _____

Wind speed _____

Plane speed _____

4. A spa is offering two deals. Clients can get five facials and three manicures for \$128, or two facials and three manicures for \$62. What are the special prices of a facial and a manicure? (2 marks)

Equation 1: _____

Equation 2: _____

Facial _____

Manicure _____

5. For a spirit rally, students on the school baseball team sell T-shirts. The cost of the T-shirts includes a \$500 design fee plus \$5 per T-shirt. They plan to sell the T-shirts for \$25 each. The break-even point is when the cost to design and purchase the items equals the money earned by selling the items. How many T-shirts must the team sell in order to break even?

Equation 1 (Cost): _____

Equation 2 (Money earned): _____