

2. Use your calculator to determine each value correct to 3 decimal places:

a) $8^{\frac{2}{7}} =$ _____ b) $8^{-1.392} =$ _____ c) $100^{1.5} =$ _____

3. State if the following is an exponential function, quadratic function, or a linear function.

a)

x	y
2	0
3	-2
4	-4
5	-6
6	-8

b)

x	y
0	5
1	10
2	20
3	40
4	80
5	160

c) $y = 2x^2 + 4x - 6$

4. Graph the following exponential functions:

a) $y = 3^x$ b) $y = \left(\frac{1}{3}\right)^x$ c) $y = 4^x$ d) $y = \left(\frac{1}{4}\right)^x$

5. Using the following data, determine the equation of the exponential function that would best model the data. Circle whether the function is increasing or decreasing.

a)

x	y
-1	$\frac{1}{2}$
0	1
1	2
2	4
3	8

a =

b =

Equation: _____
Increasing/Decreasing

b)

x	y
-1	4
0	1
1	$\frac{1}{4}$
2	$\frac{1}{16}$
3	$\frac{1}{64}$

a =

b =

Equation: _____
Increasing/
Decreasing

6. Identify the following functions and state the domain and range of each for the given information.

a)

x	0	2	4	6	8	10
y	6	18	30	42	54	66

Identify	Reasons
Function Type _ linear _ quadratic _ exponential _ none of the above	
Domain:	
Range:	

b)

x	0	1	2	3	4
y	2	6	18	54	162

Identify	Reasons
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Function Type _ linear _ quadratic _ exponential _ none of the above	
Domain:	
Range:	

7. A snowmobile is worth \$10 000. Each year it loses 25% of its value.
 $V = 10\,000(0.75)^t$, where V is the value of the bike, in dollars, and t is the time, in years.

- a) Determine the value of the snowmobile in 5 years.
- b) When will the snowmobile be worth \$500.

8. A \$1000 bond increases 4% of its value per annum.
 $V = 1000(1.04)^t$, where V is the value of the bond, in dollars, and t is the time, in years.
 Determine the value of the value of the bond in thirty- five years.

UNIT 6 – Financial Math

1. Simple Interest. Formula: _____

Val bought \$10 000 simple interest Canada Savings Bond. The interest rate for Val's bond is 4.5% per year. He plans on keeping the bond until it matures in 10 years.

- i) Determine the interest after the first year.
- ii) Determine the interest after it matures (after 10 years).

iii) How much will the bond be worth after it matures?

2. Compound Interest. Formula: _____

a) Suppose you invest \$600 at 5.25% compounded annually . What is the amount after 8 years?

b) Suppose you want to accumulate \$38 000 in 10 years. How much would you need to invest today at an annual rate of 4.33%?

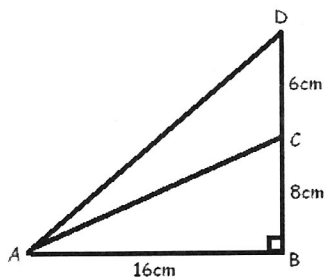
c) What principal invested today at 6.83% compounded semi-annually will amount to \$6000 in 9 years?

d) Suppose \$1500 grows to \$1850 in 3 years. What is the interest rate compounded annually?

3. Which investment is the best choice?

Option 1: \$1000 at $7\frac{1}{2}\%$ compounded semi-annually for 5 years

Option 2: \$1000 at 7% compounded monthly for 5 years



UNIT 7 - Trigonometry

1. Solve each of the following triangles. Draw and label a diagram for each first.

a) $\triangle ABC$ where $\angle C = 90^\circ$, $AC = 9\text{cm}$ and $BC = 6\text{cm}$

b) $\triangle DEF$ where $\angle D = 30^\circ$, $\angle F = 90^\circ$ and $e = 14\text{cm}$

2. Solve each of the following triangles.

a) $\triangle ABC$ where $\angle A = 82^\circ$, $a = 8.5\text{cm}$ and $b = 6.3\text{cm}$

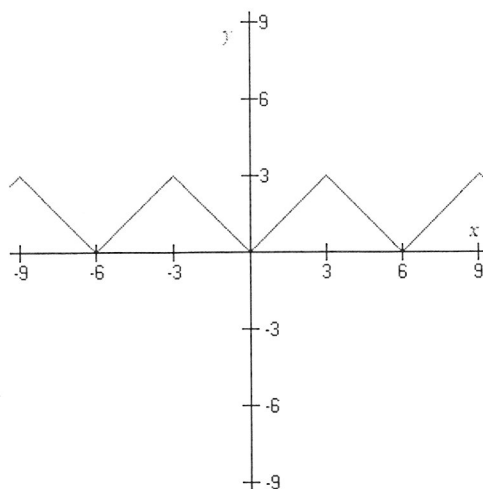
b) $\triangle DEF$ where $d = 52\text{cm}$, $e = 48\text{cm}$ and $f = 35\text{cm}$

3. Find the measure of $\angle CAD$

4. A triangular shelf is to be placed in a corner where the walls meet at an angle of 85° . The edges of the shelf along the walls are 54cm and 65cm. How long, to the nearest centimetre, is the outer edge of the shelf?
5. Given $\tan\theta = 4/7$, $0^\circ < \theta < 90^\circ$, find the values of the other five trigonometric functions of θ .
6. In $\triangle ABC$, $C = 90^\circ$, $B = 50^\circ$, and $AB = 15$ cm. Find BC and AC . (Round answers to the nearest tenth.)
7. In $\triangle ABC$, a is the length of the side opposite A , b the length of the side opposite B , etc. If $C = 70^\circ$, $c = 24$, and $a = 25$, find all solutions for the other measurements of the triangle. If no solutions exist, write *none*. Round to the nearest tenth.
8. In $\triangle ABC$, a is the length of the side opposite A , b the length of the side opposite B , etc. If $a = 14$, $b = 12$, and $B = 90^\circ$, find all solutions for the other measurements of the triangle. If no solutions exist, write *none*. Round to the nearest tenth.
9. In $\triangle ABC$, a is the length of the side opposite A , b the length of the side opposite B , etc. Given $a = 32$, $b = 38$, and $c = 46$, find all three angles to the nearest tenth of a degree.
10. In $\triangle ABC$, a is the length of the side opposite A , b the length of the side opposite B , etc. If $a = 20$, $b = 30$, and $c = 40$, find the area of the triangle. Round to the nearest tenth of a square unit.
11. Two people are walking toward each other on a path through the park. The path runs east and west. A hot air balloon is directly above the path between them. One of the walkers, a female, sees the balloon when looking east at an angle of elevation of 46° . The other walker, a male, sees the balloon looking west at an angle of elevation of 72° . If the walkers are 55 yards apart, how far is the balloon from the male observer?

Unit 8 – Graphing Trig Functions:

1. Find the period and amplitude of the function shown.
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2. State the amplitude and period for $y = 3 \sin 2\theta$. Then graph the function.

3. State the amplitude and period for $y = -1/3 \cos 3\theta$. Then graph the function.

4. Graph one period of the function $y = -\frac{1}{2} \cos(x/2)$

Specify the amplitude, period, x-intercepts, and intervals on which the function is increasing.

5. What is the amplitude and period of the given function?

$$y = \frac{1}{6} \cos 6x$$

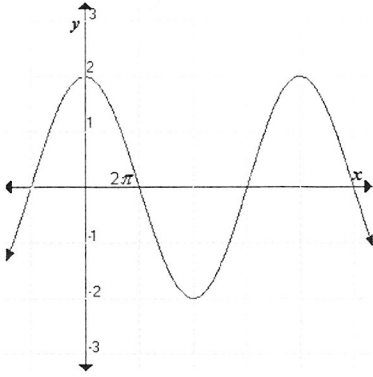
6. Write an equation of the sine function with amplitude 30, period $3\pi/4$, phase shift $\pi/2$, and vertical shift -25.

7. Write an equation of the cosine function with amplitude 3.5, period $\pi/2$, phase shift $\pi/4$, and vertical shift 9.

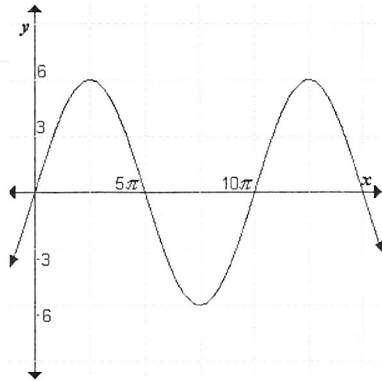
8. Explain how the graph of $y = \sin x$ can be transformed to produce the graph of the function $y = 7 + \sin x$.

9. The equation of the vibrations of the note F above middle C is represented by $y = 0.5 \sin 698\pi t$. Determine the amplitude and period for the function.

10. Write an equation that represents the given cosine function.



11. Find the amplitude and period of the graph of the function.



Solutions: