IB Summer Homework
IB Math Applications and Interpretation Year 1

Name _____

Dear Future IB Math Applications and Interpretation Year 1 Student,

I hope you are excited for your upcoming year in IB Math Applications and Interpretation Year 1 class! The purpose behind this summer homework packet is to reacquaint you with the necessary skills to be successful in this year's math course.

At first glance this packet may seem overwhelming. However, there are approximately 9 weeks of summer. Pace yourself. There are 7 Parts of this packet – complete one part each week and you will easily be able to complete the assignment before your return to school in the fall. Please be prepared to submit this assignment during your **second IB Math Apps and Int. SL class**. It will be graded for accuracy as well as completion. Work needs to be shown in a neat and organized manner, and it is perfectly acceptable to complete the packet on separate sheets of paper. Just be sure to staple any extra papers to the packet. **Please utilize a calculator!**

Show ALL work for each problem and take your time. Remember, this will be your first impression to your new math teacher, and you want to make sure that it is a positive one! See below for directions and helpful links. We hope you have a wonderful summer!

Best,
Wareham High School Math Department

Need help with your Summer math packet???

Feel free to email Mrs. Medina at mmedina@wareham.k12.ma.us with any questions you might have. To ensure the fastest response, please include your name, summer assignment name, and (if possible) a picture of the problem and your accompanying work.

Directions:
- Before answering any questions, read through the given notes and examples for each topic.
- This packet is to be submitted during your **second IB Math Apps and Int. SL class** period.
- All work must be shown in the packet or on a separate sheet of paper stapled to the packet.
- **To avoid a penalty on your grade, final answers MUST BE BOXED or CIRCLED.**

Name_____Date_____

IB Math Applications and Interpretation Y1
Summer Assignment
*ALL work must be shown to receive credit

Notes:

Pythagorean Theorem: $a^2 + b^2 = c^2$

Gradient (slope): $m = \frac{y_2 - y_1}{x_2 - x_1}$

Midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

y-intercept: When x=0

x-intercept: When y=0

Outer Surface Area:
 Cylinder $A = 2\pi r h$ sphere $A = 4\pi r^2$ cone $A = \pi r l + \pi r^2$

Volume:
 Sphere $V = \frac{4}{3}\pi r^3$ cone $V = \frac{1}{3}(area\ of\ base\ \times\ height)$ cylinder $V = \pi r^2 h$
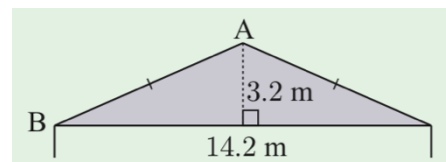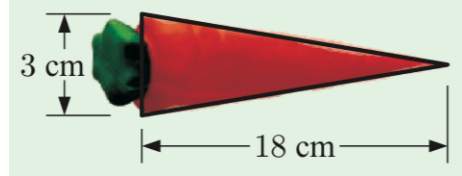
Circle:
$A = \pi r^2$ $C = 2\pi r$

1.	A graduation certificate has a validation thread across one diagonal and around the edges. How much thread is required for each certificate?	420 mm ← 297 mm →
2.	Find the length of the truss AB for the roof structure shown.	A 3.2 m B 14.2 m

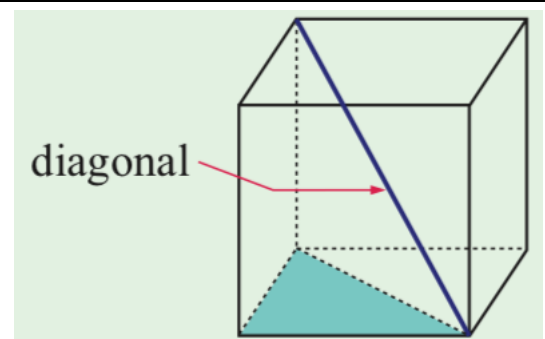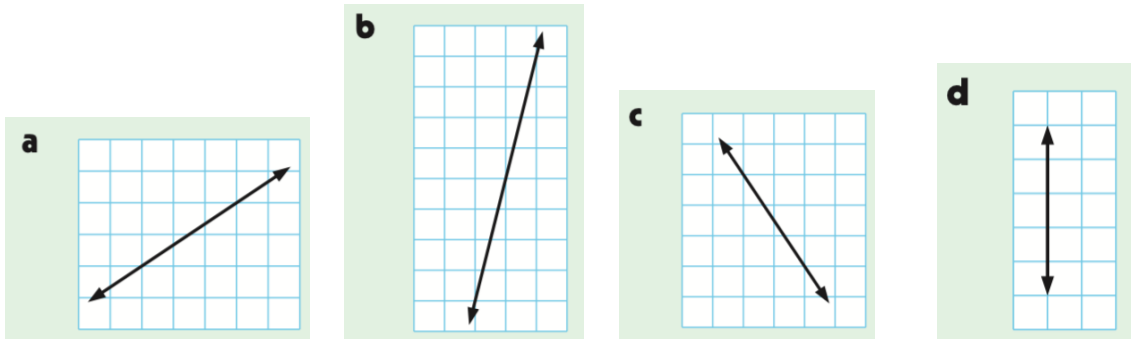| 3.	A carrot is 18 cm long with maximum diameter 3 cm. How long is a strip of its peel?	3 cm 18 cm
4.	A chalet roof is shaped as shown. There is a triangular window at the front. a. Find the height of the window b. Find the area of glass for the window.	12 m 8 m
5.	A cubic iron grid has sides of length 10 m. Find the length of a diagonal brace of the cube.	diagonal
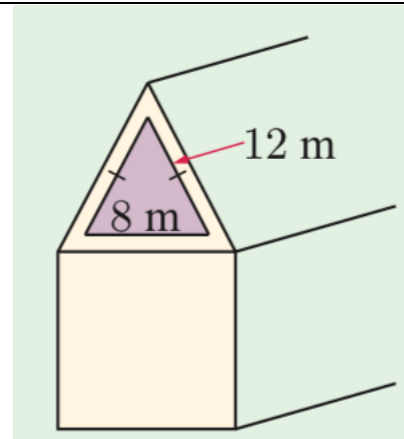
6.	Determine the midpoint of the line segment joining K(3, 5) to L(7, -2)
7.	Find, in gradient-intercept form, the equation of the line through: a. (2, -1) with gradient -3 b. (3, -2) and (-1, 4)
8.	Find the gradient of each of the following lines:
9.	Find the y-intercept & x-intercept for each line: a. $y = -\frac{3}{2}x + 7$ b. $5x - 3y - 12 = 0$

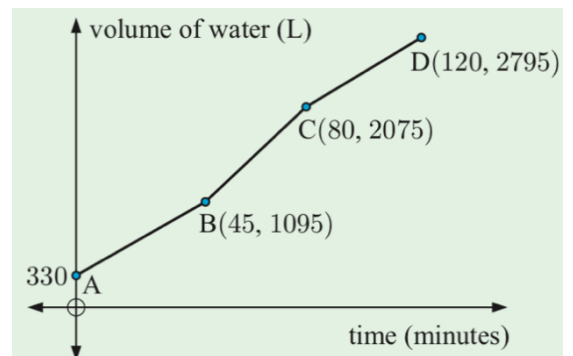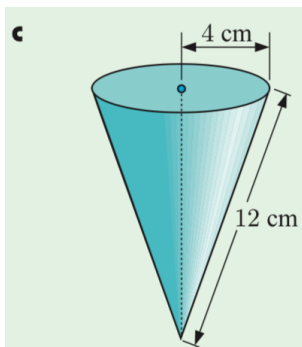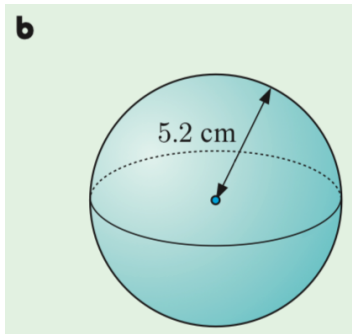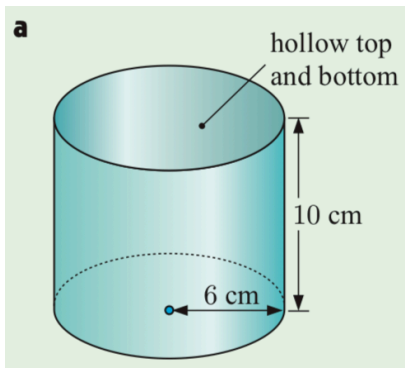|	
10.	The illustrated circle has centre (3, 2) and radius 5. The points A(8, 2) and B(6, -2) lie on the circle. a. Find the midpoint of chord AB b. Find the equation of the perpendicular bisector of the chord.
11.	Jalen monitors the amount of water in his rainwater tank during a storm. a. How much water was in the tank before the storm? b. When was it raining hardest? c. At what rate is the tank filling between C and D? d. What is the average water collection rate during the whole storm?

Figure (Question 11): volume of water (L) vs time (minutes). Points: A at 330, B(45, 1095), C(80, 2075), D(120, 2795).

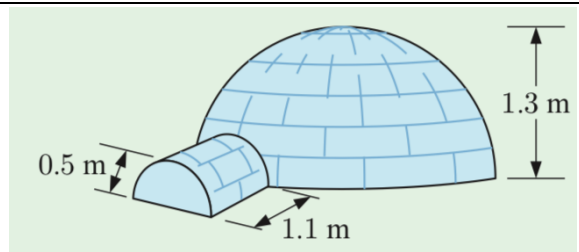| 12.	Find the outer surface area:
	a hollow top and bottom 10 cm 6 cm
	b 5.2 cm
	c 4 cm 12 cm
13.	A rectangle measures 7.1 cm by 6.3 cm a. Find the radius of a circle with the same area b. Which has a shorter perimeter, and by how much?

14.	Find the volume of the igloo.
0.5 m
1.1 m
1.3 m |

| 15. | Find:

a. the radius of a circle of area 98 m²

b. the height of a cone with base radius 5 cm and volume 288 cm³ |