

IM1 Problem Set 35

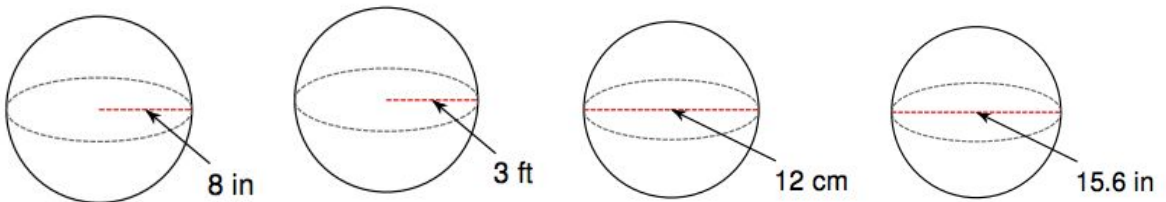
Task 1	Task 2	DC
Put solutions to problems from the previous Problem Set on the board	Discuss all problems and come to a consensus. Record solutions in your notebooks and present solutions.	DC

Problem Set 35

- 35.1** Use your calculator to enter the equation $y = 3x$ into your equation editor ($y =$ key on your TI-84)
- Go to tableset and start the table at $x = 0$ and set Δ table to 1.
 - Go to the data table on your TI-84 and complete the following data table:
- | | | | | | | |
|-----|---|---|---|---|---|---|
| x | 0 | 1 | 2 | 3 | 4 | 5 |
| y | | | | | | |
- What do you notice about consecutive y -values in the table? How is this related to the equation?

- 35.2** Use your calculator to enter the equation $y = 3^x$ into your equation editor ($y =$ key on your TI-84)
- Go to tableset and start the table at $x = 0$ and set Δ table to 1.
 - Go to the data table on your TI-84 and complete the following data table:
- | | | | | | | |
|-----|---|---|---|---|---|---|
| x | 0 | 1 | 2 | 3 | 4 | 5 |
| y | | | | | | |
- What do you notice about consecutive y -values in the table? How is this related to the equation?

- 35.3** Determine the volume and surface area of the following spheres:



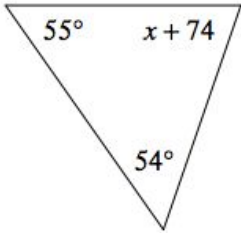
35.4 On January 1st, 2020, my son Alexander had a monthly allowance of \$50. Every month since, Mr S will increase Alexander's allowance by \$5/month.

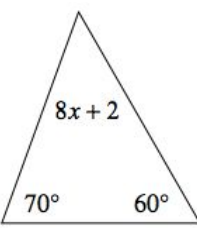
- How much is Alexander's monthly allowance in Jan? In Feb? In March? In April? In May?
- Write an equation to model Alexander's monthly allowance. Use the equation to predict Alexander's monthly allowance in December.
- What does the slope represent?
- When will Alexander's monthly allowance be \$250? What assumptions are you making?

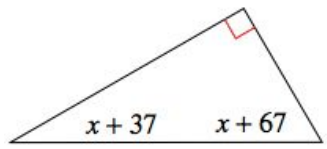
35.5 On January 1st, 2020, my other son Andrew had a monthly allowance of \$50. Every month since, Mr S will increase Andrew's allowance by 5% of his previous month's allowance.

- How much is Andrew's monthly allowance in Jan? In Feb? In March? In April? In May?
- Mr. S decides that the equation $y = 50(1.05)^x$ can be used to model Andrew's monthly allowance. Use this equation to predict Andrew's monthly allowance in December.
- Graph the equation $y = 50(1.05)^x$ using your calculator and using DESMOS. Copy the graph into your notebook.

35.6 Determine the value of x in the following diagrams:

a. 

b. 

c. 

35.7 Use your calculator to enter the equation $y = 2^x$ into your equation editor ($y =$ key on your TI-84)

- Go to tableset and start the table at $x = 0$ and set Δ table to 1.
- Now go to the data table and complete the following table in your notebooks:

x	-4	-3	-2	-1	0	1	2	3	4
y									

- What happens to the y -values when the x values have larger and larger positive values?
- What happens to the y -values when the x values have larger and larger negative values?
- Now graph the function and sketch the graph into your notebooks. Label the y -intercept and the asymptote

35.8

Evaluate the following without the use of a calculator

- a. (i) 2^3 (ii) 3^2 (iii) -2^3 (iv) -3^2 (v) 4^3 (vi) 3^4
- b. (i) 2^{-3} (ii) 3^{-2} (iii) -2^{-3} (iv) -3^{-2} (v) 4^{-3} (vi) 3^{-4}
- c. (i) $(x^4)^3$ (ii) $(2x^2)^3$ (iii) $(x^4)(x^2)$ (iv) $(2x^3)(6x^4)$ (v) $(x^4)(2x^3)^2$