

## IM1 Problem Set 19

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 19

<b>19.1</b>	<p>Solve the following equations:</p> <p>a. i.) <math>-4k + 2(5k - 6) = -3k - 39</math>      ii.) <math>8x + 4(4x - 3) = 5(6x + 4) - 4</math></p> <p>b. i.) <math>\frac{9}{4} = -\frac{3}{2}x + 4\frac{3}{4}</math>      ii.) <math>-\frac{11}{2} = -2\frac{1}{3} + 3\frac{1}{6}x</math></p>
<b>19.2</b>	<p>Sally and Laura are writing an IM2 test. The probability of Sally passing her test is 0.7 The probability of both Sally and Laura passing is 0.56</p> <p>a. Work out the probability of Laura passing the IM2 test.            b. Complete the tree diagram.            c. Find the probability of both girls failing.            d. Find the probability of either girl failing.</p> <div style="text-align: right;"> </div>
<b>19.3</b>	<p>Hannah wants to know if she is improving her skill on the cello. She created a scatter plot and drew a line of best fit. She uses the point (2, 8) and (5, 1.5) from her line to determine an equation for the line of best fit.</p> <p>a. Write the equation for this line of best fit.            b. What do the slope and y-intercept mean in the context of this question?            c. Determine the x-intercept. What does it mean in the context of this question?</p> <div style="text-align: right;"> </div>
<b>19.4</b>	<p>Write equations for the following two lines and then graph both lines on your TI-84 to find the point at which they intersect. <math>L_1</math> is the line that goes through the points (-2,3) and (4,0) and <math>L_2</math> is the line that goes through (3,-5) and also goes through (-3,-13)</p>

**19.5** Find the area and perimeter of each of the compound shapes shown below:

a.

9)

b.

**19.6** As high altitude enthusiasts (like mountain climbers and sky divers) know, there is a relationship between the temperature in  $^{\circ}\text{C}$  and the altitude. So, Mr. S starts his mountain climbing adventure at an altitude of 1000m, where he knows the temperature is  $6.3^{\circ}\text{C}$ . He knows that the temperature at Base Camp 1 is  $-13.6^{\circ}\text{C}$  (which has an altitude of 4000m) and he also knows the temperature at Base Camp 2 is  $-39.2^{\circ}\text{C}$ .

- Write a linear equation to model the relationship between altitude ( $x$ ) and temperature ( $y$ ).
- What does the slope and the  $y$ -intercept mean in the context of this question?
- Most people are at risk of frostbite within 10-20 minutes of exposure to temperatures below  $-20^{\circ}\text{C}$ . Predict at which altitude the temperatures will first go below  $-20^{\circ}\text{C}$ .

**19.7** 50 students were asked in a survey whether they use texts or social media.

20 students said they only use texts.  
8 students said they only use social media.  
17 students said they use both texts and social media.

- Put this information on the Venn diagram.
- How many of the students in the survey do not use texts or social media?
- One of the students in the survey is chosen at random. What is the probability that this student uses texts?

**19.8** The following set of data represents the scores on a mathematics quiz:

58, 79, 81, 99, 68, 92, 76, 84, 53, 57, 81, 91, 77, 50, 65, 57, 51, 72, 84, 89

- Complete the frequency table below and draw and label a frequency histogram of these scores.
- Find the mean, median and mode and the quartile scores.
- In what interval does the median of this data set lie?
- In what interval does the lower quartile of this data set lie?

Interval	TALLY
50 - 59	
60 - 69	
70 - 79	
80 - 89	
90 - 99	