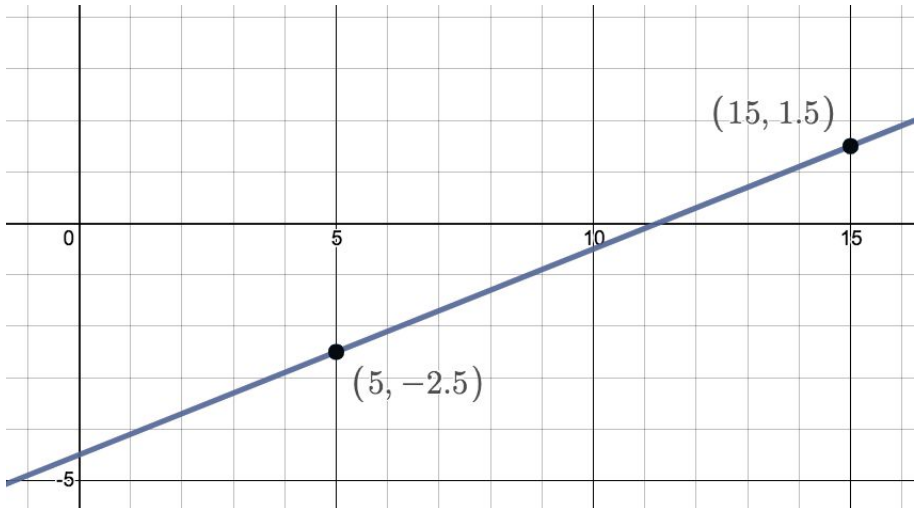
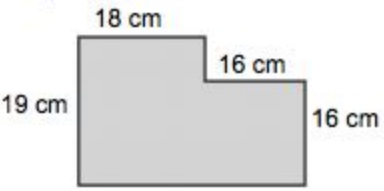
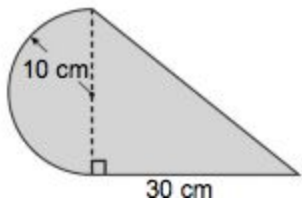


## IM1 Problem Set 11 - Daily Tasks

| 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 11

|             |   |
|-------------|---|
| <b>11.1</b> | <p>Evaluate the following numerical expressions:</p> <p>a. (i) <math>12 \div 6 + 5^2 \times 3</math>                      (ii) <math>-4(1+5)^2 \div 6 - (42+5)</math><br/>                     b. Using the numbers -4, 10, 8, 2, -3, -5, create two expressions that equal 6.</p>                    |
| <b>11.2</b> | <p>Tracy bought two sweaters. One of the sweaters was on sale for 25% off. After the price reduction, each of the sweaters was the same price. If Tracy paid a total of \$48 for both sweaters, determine the original price of the sweater that was on sale.</p>                                     |
| <b>11.3</b> | <p>Determine the equation of the following linear functions:</p> <p>a. The line shown in this graph:</p> <div style="text-align: center;">  </div> <p>b. the line goes through the points A(3,3) and B(6,-6).</p> |
| <b>11.4</b> | <p>Use your graphing calculator to graph the linear function <math>3x + 9y - 24 = 0</math> and determine the <math>x</math>- and <math>y</math>-intercepts as well as 3 additional points on the line and then sketch the line in your notebooks, labeling the information (the 5 points).</p>        |

|                    |  |
|--------------------|--|
| <p><b>11.5</b></p> | <p>Write equations to represent the following number relationships and then prepare a table of values showing several number combinations that represent the situation being described. In each case, the CONDITION on the “original” number is that it must be a real number between but excluding -4 and 8.</p> <ol style="list-style-type: none"> <li>To “create/generate” a new value, a number is reduced by 2 and then this result is halved.</li> <li>To “create/generate” a new value, a number is doubled and then increased by four.</li> <li>Mr. S works at CAC and initially earned \$40,000 per year and then he receives an additional annual bonus of \$2,000 for each year he works here.</li> </ol>                   |
| <p><b>11.6</b></p> | <p>The population of Manila (in the Philippines) in 2007 was estimated to be 11,500,000 and was estimated to be 16,300,000 in 2011.</p> <ol style="list-style-type: none"> <li>Determine the annual growth rate of Manila’s population.</li> <li>Determine an equation that could be used to model the population of Manila as a function of years since 2000.</li> <li>Use your equation to predict the population of Manila in 2010.</li> <li>Use your equation to predict the population of Manila in 2018.</li> <li>How confident are you (and for what reasons) that your population predictions for 2010 and 2018 are correct.</li> <li>Go online and find data for the actual population of Manila in 2010 and 2018.</li> </ol> |
| <p><b>11.7</b></p> | <p>Determine the area and perimeter of the following shapes:</p> <p>a. </p> <p>b. </p>  |
| <p><b>11.8</b></p> | <p>Use appropriate formulas to determine the unknowns in each of the following:</p> <ol style="list-style-type: none"> <li>Calculate the temperature when 2.00 L at 20.0 °C is compressed to 1.00 L.</li> <li>600.0 mL of air is at 20.0 °C. What is the volume at 60.0 °C?</li> <li>A gas occupies 900.0 mL at a temperature of 27.0 °C. What is the volume at 132.0 °C?</li> <li>What volume results if 60.0 mL of gas is cooled from 33.0 °C to 5.00 °C?</li> <li>The gas in a balloon occupies 2.25 L at 298 K. At what temperature will the balloon expand to 3.50 L?</li> </ol>  |