## IM1 Problem Set 13 - Daily Tasks

| Task 1 | Task 2 | DC |
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| 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 13

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| **13.1** | a. The volume of a sample of gas is 2.00 L when the temperature is 11.0 °C. While the pressure remains constant, the temperature is changed to a new value, which causes the volume to become 3.00 L. What was the temperature changed to?<br>b. The volume occupied by a sample of gas is 480 mL when the pressure is 115 kPa. What pressure must be applied to the gas to make its volume become 650 mL? |
| **13.2** | The following questions deal with exponents and the meanings of exponents:<br><br>a. Simplify the expression $(3x^2y^3)^2 \times (2x^3y^4)^3$<br>b. Evaluate $2^5$ and then evaluate $2^4$ and then evaluate $2^3$ and then evaluate $2^2$ and then evaluate $2^1$.<br>c. What pattern do you observe in the numbers you have generated?<br>d. Using this pattern, explain what $2^0$ equals and what $2^{-1}$ and what $2^{-2}$ equal. |
| **13.3** | a. Fill in the table at the right with value for $x$ and $y$ so that the pairs are solutions to the equation $\frac{x}{2} + \frac{y}{3} = 1$.<br>b. Use the ordered pairs to graph the line. Based on your graph, is the slope of the line positive or negative?<br>c. Determine the slope of the line just as you did previously. Does this correspond with your answer to part b?<br>d. What do the 2 and 3 represent in the equation? <div>

| $x$ | $y$ |
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| | 0 |
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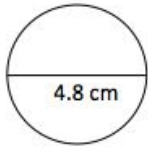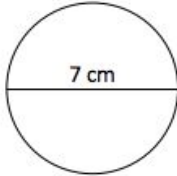| **13.4** | The speed of sound in air can be calculated based upon temperature using a linear relation. At 10 °C, the speed of sound is 337.4 meters per second and at 21.5 °C, the speed is 344.3 m/s.<br><br>a. What is the speed of sound when the temperature is 32.3°C?<br>b. What is the temperature when the speed of sound is 350 m/s? |

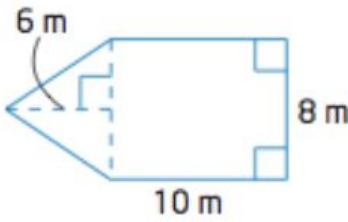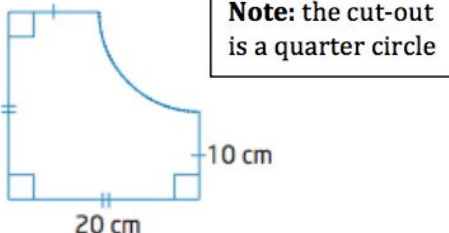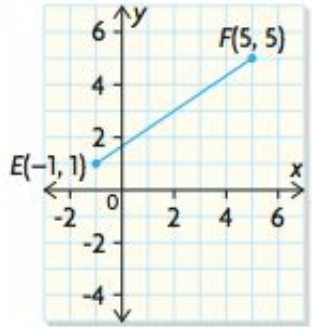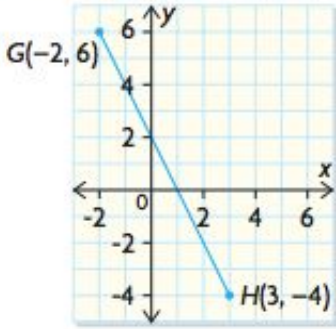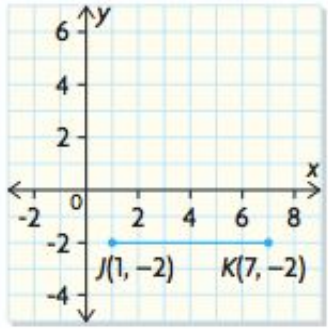| | |
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| **13.5** | Write the equations of the following linear functions:<br><br>    a.   the line that passes through the two points ( 0,7), (-4,-1).<br>    b.   the line with slope of ⅔ and that goes through the point (9,-3).<br><br>Please write the line in all three of the given forms ⇒ (i) Slope-intercept form, (ii) Point-slope form and (iii) Standard form. Then graph these lines on Desmos and take a screen shot. |
| **13.6** | Find the area and circumference of the following circles:<br><br>4) 4.8 cm<br><br>5) 7 cm |
| **13.7** | Find the area and perimeter of the following two composite shapes:<br><br>6 m    8 m    10 m<br>a.<br><br>**Note:** the cut-out is a quarter circle<br>10 cm    20 cm<br>b. |
| **13.8** | a) F(5, 5)   E(−1, 1)<br>b) G(−2, 6)   H(3, −4)<br>c) J(1, −2)   K(7, −2)<br><br>Given the points above, find the (i) midpoint, (ii) slope and the (i) distance between the points |