

IM1 Problem Set 49

Problem Set 49

49.1 Use your calculator and a standard view window to graph and analyze the following functions:
(Your analysis will include the domain, range, asymptotes (if any), and x - and y -intercepts (if any))

a. $f(x) = -2x + 4$

b. $f(x) = -(2^x) + 4$

c. $f(x) = 4 - x^2$

49.2 For the following functions, graph them using DESMOS and then answer the following questions about the parabolas $\Rightarrow y = x^2, y = 2x^2, y = 3x^2$ and $y = 5x^2$

- What do all the parabolas have in common?
- What is different about each of the parabolas?
- What does changing the “leading coefficient” seem to do to the parabola?

49.3 Expand and simplify the following polynomial expressions:

a. (i) $x(x + 4) + 5(x + 4)$

(ii) $(x + 5)(x + 4)$

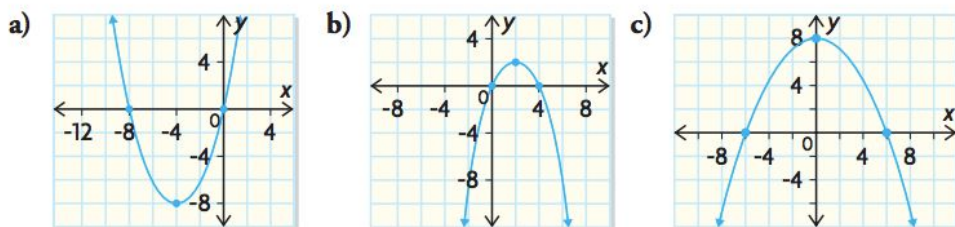
b. (i) $x(x + 5) - 6(x + 5)$

(ii) $(x - 6)(x + 5)$

49.4 A baseball is hit into the air. Its height above the ground is approximated by the relation $h(t) = -5t^2 + 20t + 1$ where h is the height in meters and t is the time since the baseball was hit.

- What are the zeroes (x -intercepts) and what do they represent?
- What is the y -intercept and what does it represent?
- What are the coordinates of the vertex? What does this point represent?
- Sketch the relation into your notes, labeling the key points.
- What would be the domain and range of this relation?

49.5 For each graph, state the y -intercept, the zeroes, the coordinates of the vertex and the equation of the axis of symmetry



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| <p>49.6</p> | <p>An infatablcraft is dropped from a Search and Rescue helicopter to a boat in distress. The height of the raft above the water, in meters, is approximated by the relation $h(t) = 500 - 5t^2$, where t is the time in seconds since the raft was dropped.</p> <ol style="list-style-type: none"> What is the y-intercept of the relation? What does it represent? When does the raft reach the water? What is the height of the raft above the water 6 seconds after it was dropped? When is the raft 100m above the water? |
| <p>49.7</p> | <p>Given the function $y = x^2 - 2x - 8$, use your calculator to help answer the following questions about this quadratic relation</p> <ol style="list-style-type: none"> Create a table of values, using the x values of $\{-3,-2,-1,0,1,2,3,4,5\}$. Determine the equation of the axis of symmetry. Find the coordinates of the vertex. Find the coordinates of the zeros. Find the y-intercepts. Determine the maximum OR minimum value. |
| <p>49.8</p> | <p>Fun times today and thanks for your participation and efforts in this situation. As requested, I am putting the video of the recorded lesson into our shared google folder ==> (address link below)</p> <p>https://drive.google.com/drive/folders/12SwzmIuNrofSFnJxpHtQ67tCcCTp7LSN</p> <p>Second item is how I want the problem sets submitted. Here is a set of instructions for submitting Problem Sets ==> they need to be scanned into pdf form (NO PHOTOS) ==> Go to any APP store and get the FREE app like “Scanbot,” or “CamScanner”. I have downloaded Scanbot . Then use your phone to take pictures of your work using the SCAN APP and make sure to export it as ONE pdf.</p> |