

Plotting Non-Linear Graphs – Create-a-Picture

For each of the following equations, complete the table of values and plot the graph of the equation between the x -values given. Give y -coordinates to 1 decimal place where appropriate.

1. $y = 0.11x^3 - 13$ $\{-2 \leq x \leq 4\}$

x	-2	-1	0	1	2	3	4
y	-13.9	-13.1	-13	-12.9	-12.1	-10.0	-6.0

2. $y = 0.5(x - 6)^3 - 2$ $\{4 \leq x \leq 6\}$

x	4	4.25	4.5	4.75	5	5.25	5.5	5.75	6
y	-6	-4.7	-3.7	-3.0	-2.5	-2.2	-2.1	-2.0	-2

3. $y = -\frac{x^2}{16} - 5$ $\{-4 \leq x \leq 4\}$

x	-4	-3	-2	-1	0	1	2	3	4
y	-6	-5.6	-5.3	-5.1	-5	-5.1	-5.3	-5.6	-6

4. $y = x^2 + 2x - 14$ $\{-4.2 \leq x \leq -2\}$

x	-4.2	-4	-3.5	-3	-2.5	-2
y	-4.8	-6	-8.8	-11	-12.8	-14

5. $y = -0.15(x - 2)^2 + 1.5$ $\{-4.2 \leq x \leq 6.3\}$

x	-4.2	-2.1	0	2.1	4.2	6.3
y	-4.3	-1.0	0.9	1.5	0.8	-1.3

6. $y = -\frac{x^2}{16} - 3.5$ $\{-4.2 \leq x \leq 4.2\}$

x	-4.2	-3	-2	-1	0	1	2	3	4.2
y	-4.6	-4.1	-3.8	-3.6	-3.5	-3.6	-3.8	-4.1	-4.6

7. $y = 0.08(x + 2)^2(x - 2)^2 - 9$ $\{-3.2 \leq x \leq 3.2\}$

x	-3.2	-2	-1	0	1	2	3.2
y	-5.9	-9	-8.3	-7.7	-8.3	-9	-5.9

Now add the following circle:

8. $(x - 7)^2 + (y + 2)^2 = 1$

9. $(x + 1.5)^2 + (y + 6.5)^2 = 0.5$

10. $(x - 1.5)^2 + (y + 6.5)^2 = 0.5$

Finally, colour in your picture!

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