**Plotting Quadratic 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 2 decimal places where appropriate.

**1.** $y=\frac{x^{2}}{8}+8$ $\{-4\leq x\leq 4\}$

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$-4$$ | $$-3$$ | $$-2$$ | $$-1$$ | $$0$$ | $$1$$ | $$2$$ | $$3$$ | $$4$$ |
| $$y$$ |  |  |  |  |  |  |  |  |  |

**2.** $y=\frac{x^{2}}{4}-2x+14$ $\{0\leq x\leq 4\}$

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$0$$ | $$0.5$$ | $$1$$ | $$1.5$$ | $$2$$ | $$2.5$$ | $$3$$ | $$3.5$$ | $$4$$ |
| $$y$$ |  |  |  |  |  |  |  |  |  |

**3.** $y=\frac{x^{2}}{4}+2x+14$ $\{-4\leq x\leq 0\}$

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$-4$$ | $$-3.5$$ | $$-3$$ | $$-2.5$$ | $$-2$$ | $$-1.5$$ | $$-1$$ | $$-0.5$$ | $$0$$ |
| $$y$$ |  |  |  |  |  |  |  |  |  |

**4.** $y=\frac{x^{2}}{4}-3x+13$ $\{2\leq x\leq 6\}$

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$2$$ | $$2.5$$ | $$3$$ | $$3.5$$ | $$4$$ | $$4.5$$ | $$5$$ | $$5.5$$ | $$6$$ |
| $$y$$ |  |  |  |  |  |  |  |  |  |

**5.** $y=\frac{x^{2}}{4}+3x+13$ $\{-6\leq x\leq -2\}$

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$-6$$ | $$-5.5$$ | $$-5$$ | $$-4.5$$ | $$-4$$ | $$-3.5$$ | $$-3$$ | $$-2.5$$ | $$-2$$ |
| $$y$$ |  |  |  |  |  |  |  |  |  |

**6.** $y=\frac{x^{2}}{12}+1$ $\{-6\leq x\leq 6\}$

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$-6$$ | $$-4$$ | $$-2$$ | $$0$$ | $$2$$ | $$4$$ | $$6$$ |
| $$y$$ |  |  |  |  |  |  |  |

**7.** $y=\frac{x^{2}}{4}-4x+14$ $\{4\leq x\leq 8\}$

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$4$$ | $$4.5$$ | $$5$$ | $$5.5$$ | $$6$$ | $$6.5$$ | $$7$$ | $$7.5$$ | $$8$$ |
| $$y$$ |  |  |  |  |  |  |  |  |  |

**8.** $y=\frac{x^{2}}{4}+4x+14$ $\{-8\leq x\leq -4\}$

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$-8$$ | $$-7.5$$ | $$-7$$ | $$-6.5$$ | $$-6$$ | $$-5.5$$ | $$-5$$ | $$-4.5$$ | $$-4$$ |
| $$y$$ |  |  |  |  |  |  |  |  |  |

**9.** $y=\frac{x^{2}}{16}-6$ $\{-8\leq x\leq 8\}$

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$x$$ | $$-8$$ | $$-6$$ | $$-4$$ | $$-2$$ | $$0$$ | $$2$$ | $$4$$ | $$6$$ | $$8$$ |
| $$y$$ |  |  |  |  |  |  |  |  |  |

Now add the following straight lines:

**10**. $y=-9$ $\{-2\leq x\leq 2\}$

**11**. $x=-2$ $\{-9\leq y\leq -6\}$

**12**. $x=2$ $\{-9\leq y\leq -6\}$

Finally, colour in your picture!

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