GSE Algebra 1 **8.7 – C.T.S to Vertex form** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Complete the square to solve for x**.

|  |  |  |
| --- | --- | --- |
| $$x^{2}-14x-12=0$$ | $$3x^{2}-12x+1=0$$ | $$x^{2}+x-10=0$$ |

Now we are going to complete the square and leave it in vertex form.

**\*\* Vertex form**: $y=a(x-h)^{2}+k$

|  |  |
| --- | --- |
| $$y=x^{2}+10x+15$$Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_ Max or Min: \_\_\_\_\_\_\_\_\_\_\_ | $$y=x^{2}-8x-4$$Vertex: \_\_\_\_\_\_\_\_\_\_\_\_ Max or Min: \_\_\_\_\_\_\_\_\_\_\_ |
| $$y=2x^{2}+12x+17$$Vertex: \_\_\_\_\_\_\_\_\_\_\_ Min or Max: \_\_\_\_\_\_\_\_ | $$y=\frac{1}{2}x^{2}-6x+11$$Vertex: \_\_\_\_\_\_\_\_\_\_\_\_ Min or Max: \_\_\_\_\_\_\_\_\_\_ |
| $$y=-4x^{2}-64x-156$$Vertex: \_\_\_\_\_\_\_\_\_\_\_\_ Min or max: \_\_\_\_\_\_\_\_\_\_\_ | $$y=-x^{2}+4x-10$$Vertex: \_\_\_\_\_\_\_\_\_ Min or Max: \_\_\_\_\_\_\_\_\_\_ |

|  |  |
| --- | --- |
| $$x^{2}-12x+32=0$$Vertex: \_\_\_\_\_\_\_\_ Min or Max: \_\_\_\_\_\_\_\_\_\_\_\_ | $$y=-2x^{2}-12x+8$$Vertex: \_\_\_\_\_\_\_\_\_\_\_ Min or Max: \_\_\_\_\_\_\_\_\_\_\_\_\_ |

Let’s look at these **special** **cases** for complete the square.

|  |  |
| --- | --- |
| $$x^{2}+4x+10=0$$ | $$x^{2}-10x+65=0$$ |
| $$-3x^{2}+12x-21=0$$ |