**Graph each function. Describe its transformation from y = x².**

1. y = x²+2
2. y = x² -2
3. y = (x-6)²
4. y = (x+5)²
5. y = 3(x-2)²+3
6. y = -2(x-4)²+5

**Determine the vertex, maximum or minimum value, and axis of symmetry of each parabola.**

1. y = 5(x-6)² +7
2. y = -2(x-3)² +4
3. y = - 2.5(x+7)² +10

**Given two points on the parabola: y = a(x-h)², find the coefficients a & h.**

1. (-1,1) and (1,1)
2. (3,3) and (5,3)
3. (-5,6) and (-3,6)

**Convert from standard form of a parabola to the vertex form:**

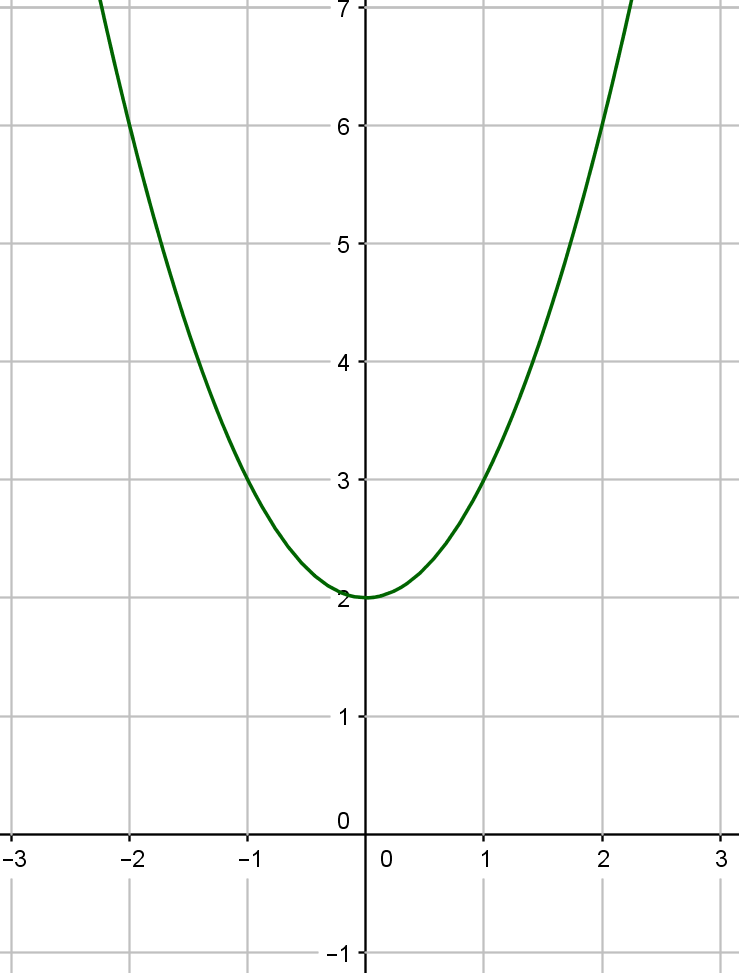
**1. y = -3x²-4x+8**

**2. y = -6x²-6x+8**

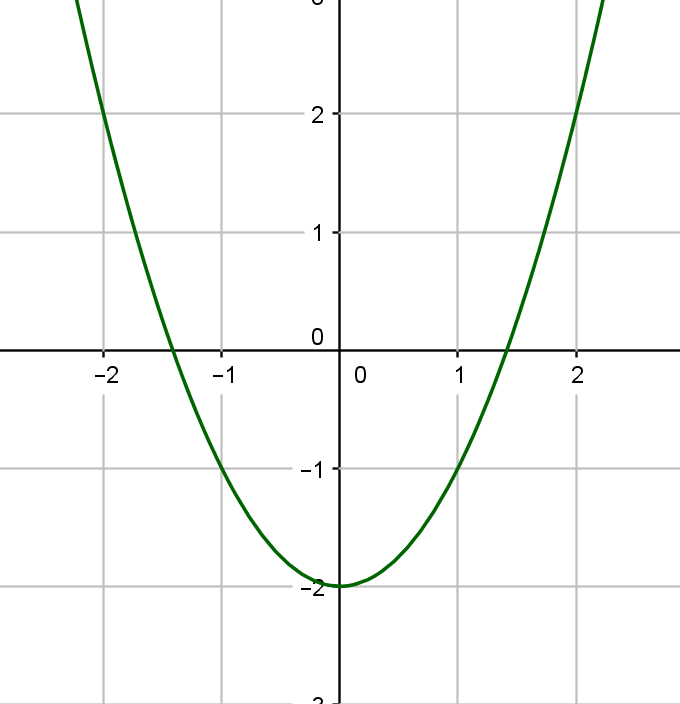
**Answers:**

**Graph each function. Describe its transformation from Y= x².**



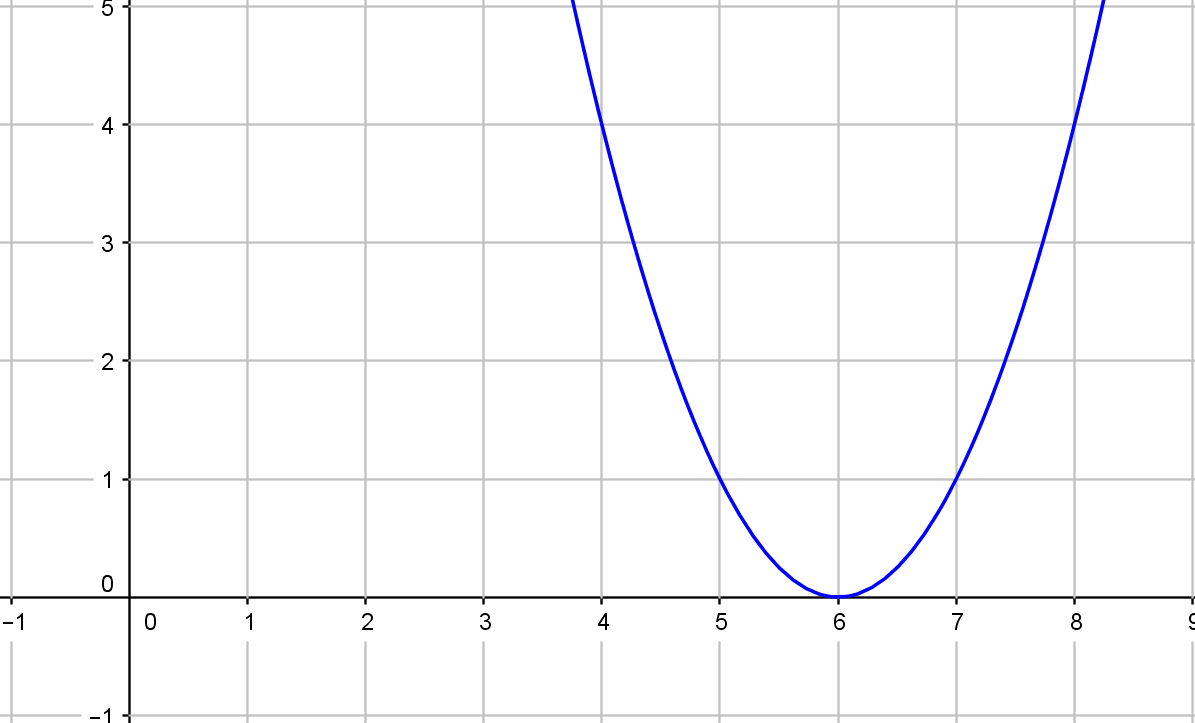
****

**Y=x² is translated 2 units up to be y= x²+2**

****

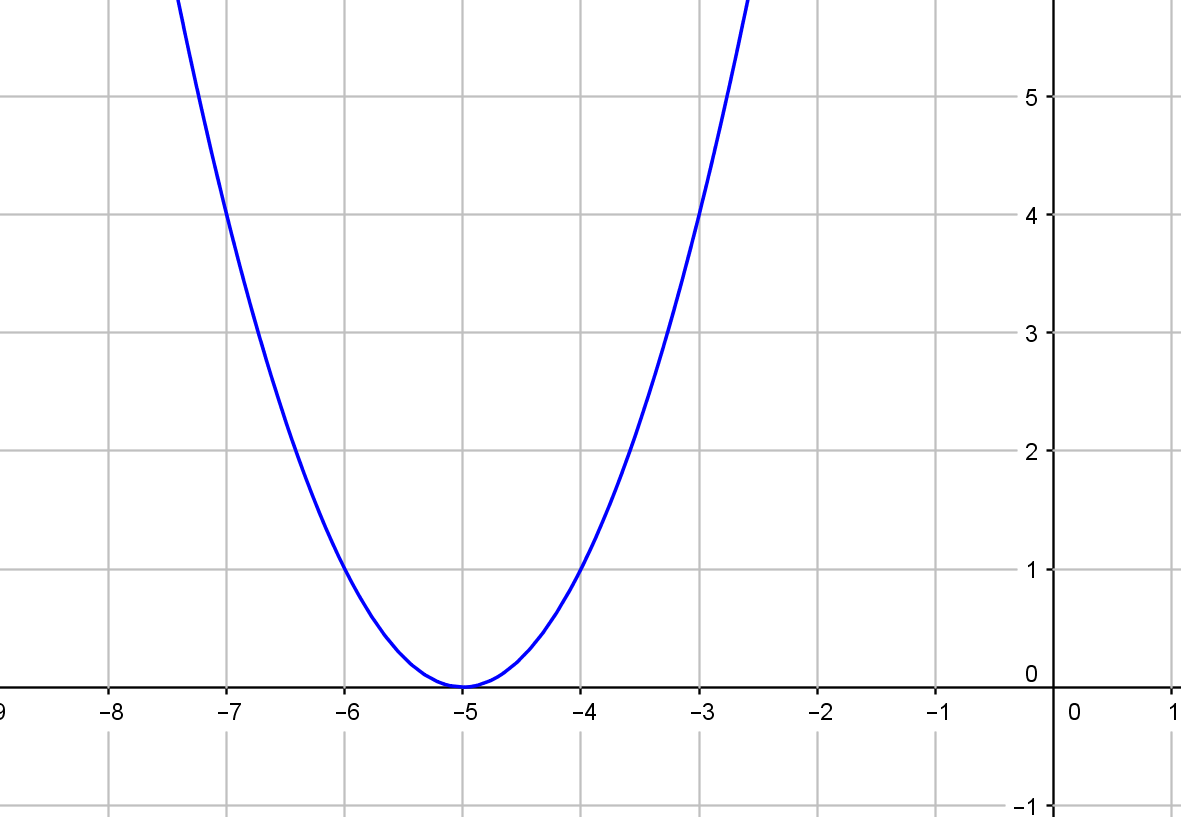
**Y=x² is translated 2 units down to be y= x²-2**



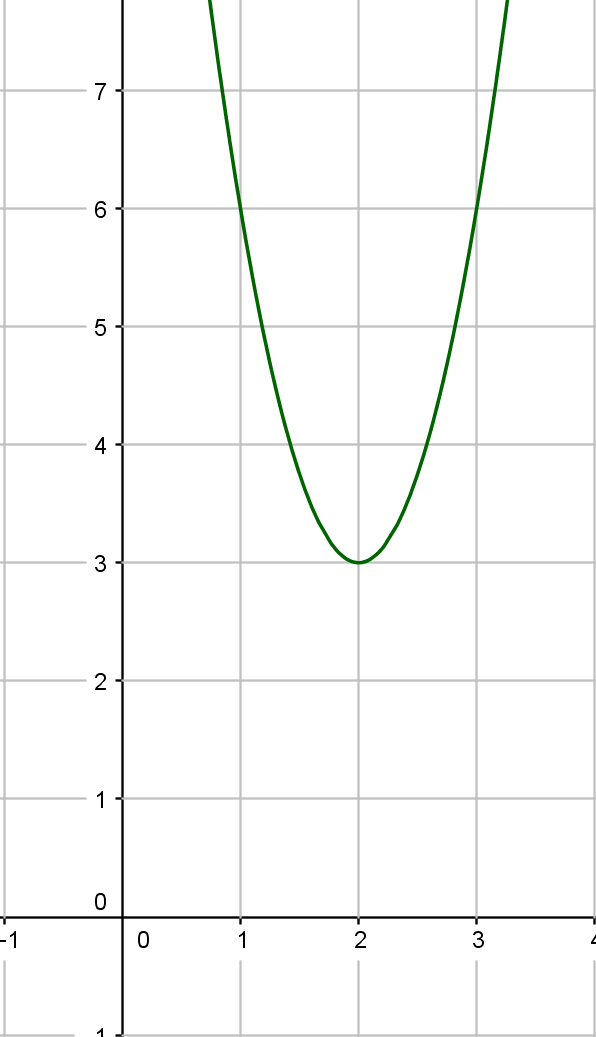
****

**Y=x² is translated 6 units to the right to be y= (x-6)²**

**4.**

****

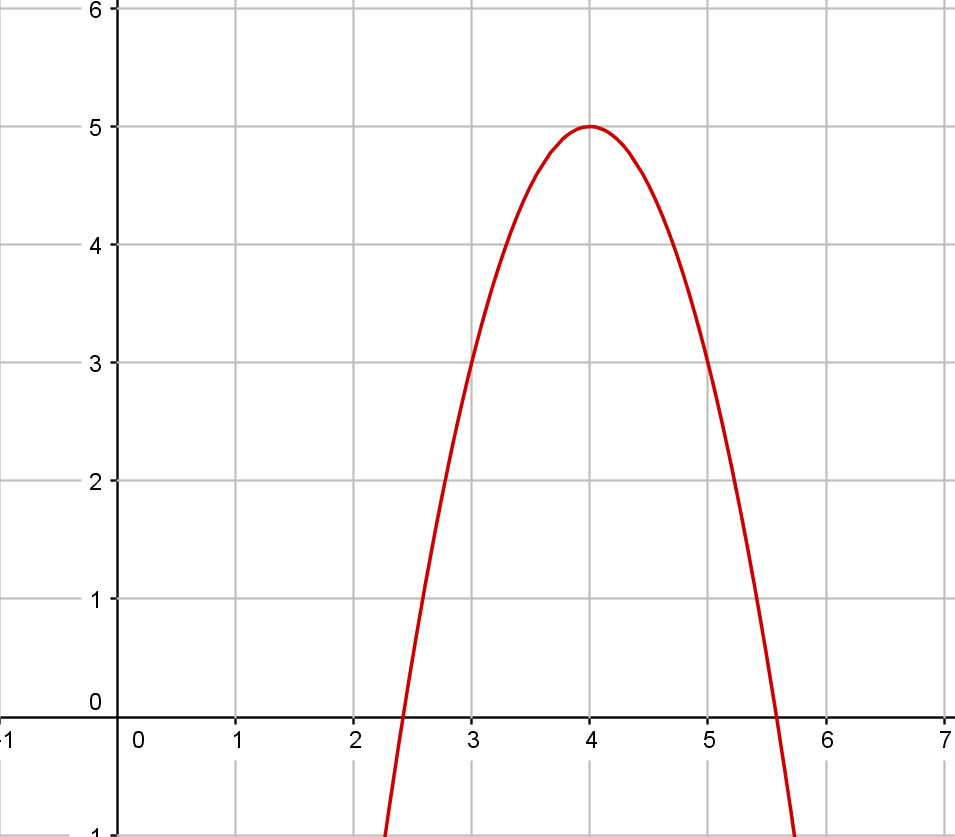
**Y=x² is translated 5 units to the left to be y= (x+5)²**

**5.**

**Y=x² is translated 2 units to the right and 3 units up,**

**and stretched vertically by a factor of 3 to be y= 3(x-2)²+3**

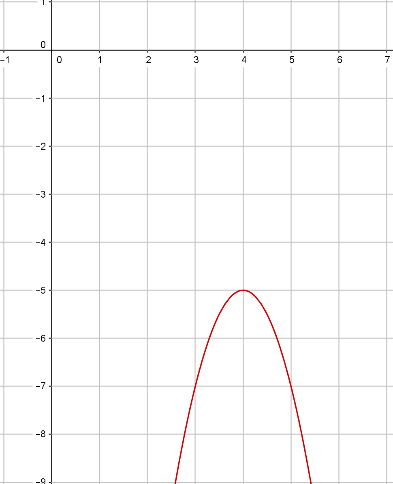
**6.**

****

**Y=x² does a reflection across the x-axis, then translated 4 units**

**to the right and 5 units up,**

**and stretched vertically by a factor of 2 to be y= -2(x-4)²+5**

**7.**

**Y=x² does a reflection across the x-axis, then translated 4 units to the right and 5 units down, and stretched vertically by a factor of 2 to be y= -2(x-4)²-5**

**Determine the vertex, maximum or minimum value,**

**and axis of symmetry of each parabola.**

1. **Vertex (6,7), Minimum value=7, Axis of symmetry x=6**

**2.**  **Vertex (3, 4), Maximum value=4, Axis of symmetry x=3**

**3. Vertex (-7,10), Maximum value=10, Axis of symmetry x= -7**

**Given two points on the parabola:**

**y= a(x-h)², find the coefficients a & h.**

1. **h=0, a=1, y= x²**
2. **h=4, a= 3, y=3(x-4)²**
3. **h= -4, a=6, y= 6(x+4)²**

**Convert from standard form of a parabola to the vertex form:**

**1. y= -4(x+(-1))²+10**

**2. y = -6(x+0.5)²+9**