9. The gravitational forces on $m_5$ from the two 500-kg masses cancel each other. Contributions to the net force on $m_5$ come from the remaining two masses:

$$F_{\text{net}} = \frac{(6.67 \times 10^{-11}\,\text{N}\cdot\text{m}^2/\text{kg}^2)(250\,\text{kg})(300\,\text{kg} - 100\,\text{kg})}{(\sqrt{2} \times 10^{-2}\,\text{m})^2} = 0.017\ \text{N}\ .$$

The force is directed along the diagonal between the 300 kg and 100 kg masses, towards the 300-kg mass.