Exercise 1 *Find a positive value for a so the vector $\vec{\mathbf{u}} = \langle 2, a, 5 \rangle$ has magnitude 17.*

$$a = \boxed{2\sqrt{65}}$$

Hint: *We can compute $|\vec{\mathbf{u}}|$ in terms of a and find:*

$$|\vec{\mathbf{u}}| = \sqrt{\boxed{29 + a^2}}$$

Setting $|\vec{\mathbf{u}}| = 17$ gives:

$$17 = \sqrt{\boxed{29 + a^2}}$$

Square both sides to obtain:

$$\boxed{289} = \boxed{29 + a^2}$$

Solving for a^2 gives:

$$a^2 = \boxed{260}$$

Now, find a.