2. The problem states that the rock is rotated at the end of a string, so the force involved is the centripetal force supplied by the string. We know that the expression for centripetal force involves mass, speed, radius, and (of course) force. For this problem all of these quantities are known except the speed, so we can easily solve for it.

$$F_c = m\ v^2 / r$$

Multiplying both sides of the equation by r / m isolates the v^2 term on one side of the equation

$$F_c\ (r / m) = (m\ v^2 / r)\ (r / m)$$

$$F_c\ (r / m) = v^2$$

$$v^2 = (44.48\ N)\ (1.3\ m) / (0.5\ kg) = 115.65\ N\ m / kg$$

$$v^2 = 115.6\ 5(kg\ m / s^2)\ m / kg) = 115.6\ 5m^2 / s^2$$

Taking the square root of both sides of the equation gives the value for v that is desired.

$$v = 10.75\ m / s$$