Derivatives as a Rate Measurer Ex 13.1 Q5

Let $r$ be the radius, $v$ be the volume of cone and $h$ be height

$$v = \frac{1}{3}\pi r^2 h$$

$$\frac{dv}{dr} = \frac{2}{3}\pi rh.$$

Derivatives as a Rate Measurer Ex 13.1 Q6

Let $r$ be radius and $A$ be area of cirde, so

$$A = \pi r^2$$

$$\frac{dA}{dr} = 2\pi r$$

$$\left(\frac{dA}{dr}\right)_{r=5} = 2\pi (5)$$

$$\left(\frac{dA}{dr}\right)_{r=5} = 10\pi$$

Derivatives as a Rate Measurer Ex 13.1 Q7

Here, $r = 2$ cm

$$v = \frac{4}{3}\pi r^3$$

$$\frac{dV}{dr} = 4\pi r^2$$

$$\left(\frac{dV}{dr}\right)_{r=2} = 4\pi (2)^2$$

$$\left(\frac{dV}{dr}\right)_{r=2} = 16\pi$$

********** END **********