

Practice differentiating the following with respect to t .

1.

(a). If x does not depend on t (i.e. x is constant), then

$$\frac{d}{dt}[x] =$$

(b). If x depends on t , then

$$\frac{d}{dt}[x] =$$

2.

(a). If y does not depend on t (i.e. y is constant), then

$$\frac{d}{dt}[y^2] =$$

(b). If y depends on t , then

$$\frac{d}{dt}[y^2] =$$

3.

(a). If x does not depend on t (i.e. x is constant) and y depends on t , then

$$\frac{d}{dt}[x^2 + y^2] =$$

(b). If x depends on t and y does not depend on t (i.e. y is constant), then

$$\frac{d}{dt}[x^2 + y^2] =$$

(c). If x depends on t and y depends on t , then

$$\frac{d}{dt}[x^2 + y^2] =$$

4.

(a). If x does not depend on t (i.e. x is constant) and y depends on t , then

$$\frac{d}{dt}[xy] =$$

(b). If x depends on t and y does not depend on t (i.e. y is constant), then

$$\frac{d}{dt}[xy] =$$

(c). If x depends on t and y depends on t , then

$$\frac{d}{dt}[xy] =$$

5.

(a). If x does not depend on t (i.e. x is constant), then $\frac{d}{dt} [\sin x] =$

(b). If x depends on t , then $\frac{d}{dt} [\sin x] =$

6.

(a). If x does not depend on t (i.e. x is constant) and y depends on t , then $\frac{d}{dt} \left[\frac{x}{y} \right] =$

(b). If x depends on t and y does not depend on t (i.e. y is constant), then $\frac{d}{dt} \left[\frac{x}{y} \right] =$

(c). If x depends on t and y depends on t , then $\frac{d}{dt} \left[\frac{x}{y} \right] =$

7.

(a). If r does not depend on t (i.e. r is constant) and h depends on t , then $\frac{d}{dt} \left[\frac{1}{3} \pi r^2 h \right] =$

(b). If r depends on t and h does not depend on t (i.e. h is constant), then $\frac{d}{dt} \left[\frac{1}{3} \pi r^2 h \right] =$

(c). If r depends on t and h depends on t , then $\frac{d}{dt} \left[\frac{1}{3} \pi r^2 h \right] =$