

E Summer Proportion General

1. The variable v varies with the square of t . When $t = 2$, $v = 20$.

(a) Find a formula for v in terms of t .

$$v = 5t^2$$

(b) Find v when $t = \frac{1}{2}$.

$$\frac{5}{4}$$

(c) Find t when $v = 500$.

$$10$$

2. The variable E varies inversely with the square root of l . When $l = 9$, $E = 4$.

(a) Find a formula for E in terms of l .

$$E = \frac{12}{\sqrt{l}}$$

(b) Find E when $l = \frac{4}{9}$.

$$18$$

(c) Find l when $E = 5$.

$$\frac{144}{25}$$

3. The variable P varies with the cube root of f . When $f = 27$, $P = 7$.

(a) Find a formula for P in terms of f .

$$P = \frac{7}{3} \sqrt[3]{f}$$

(b) Find P when $f = \frac{8}{27}$.

$$\frac{14}{9}$$

(c) Find f when $P = 14$.

$$216$$

4. The variable F varies directly m . When $m = 5$, $F = 9$.

(a) Find a formula for F in terms of m .

$$F = \frac{9}{5}m$$

(b) Find F when $m = 6$.

$$\frac{54}{5}$$

(c) Find m when $F = 17$.

$$\frac{85}{9}$$

5. The variable T varies inversely with the cube root of h . When $h = 125$, $T = 100$.

(a) Find a formula for T in terms of h .

$$T = \frac{500}{\sqrt[3]{h}}$$

(b) Find a formula for h in terms of T .

$$h = \frac{125000000}{T^3}$$

(c) Find T when $h = 8$.

$$250$$

(d) Find h when $T = 5$.

$$1000000$$

6. The variable Φ varies with the cube of λ . Copy and complete the following table (hint: you may need to find the relationship first).

λ	2	3	10
Φ	56		875

$$5, 189, 7000$$

7. The variable Ψ varies inversely with the square root of τ . Copy and complete the following table (hint: you may need to find the relationship first).

τ	16	25
Ψ	50	$\frac{100}{3}$
		20

$$36, 100, 40$$