

Transposition Worksheet 2

Solve the following:

(1) $E = IR$

Solve for R .

(2) $R^2 = Z^2 - X^2$

Solve for X .

(3) $R = \frac{P}{I^2}$

Solve for I .

(4) $X_c = \frac{1}{2\pi fC}$

Solve for C .

(5) $N_s = \frac{E_s N_p}{X}$

Solve for E_s .

(6) $\frac{Z_p}{Z_s} = \frac{N_p^2}{N_s}$

Solve for Z_s .

(7) $C = \frac{0.088 \cdot 4 \cdot kA(N-1)}{N}$

Solve for N .

(8) $P = 2\pi \sqrt{\frac{L}{g}}$

Solve for g .

(9) $x = 1 - \frac{1}{a} \left(\frac{m}{k}\right)^2$

Solve for m .

(10) $v = \sqrt{\frac{2(E-mgh)}{m}}$

Solve for m .

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Answer Key

(1) $E = IR$

Solve for R.

$$R = \frac{E}{I}$$

(3) $R = \frac{P}{I^2}$

Solve for I.

$$I^2 = \frac{P}{R}$$

$$I = \sqrt{\frac{P}{R}}$$

(5) $N_S = \frac{E_S N_P}{X}$

Solve for E_S .

$$E_S N_P = N_S X$$

$$E_S = \frac{N_S X}{N_P}$$

(7) $C = \frac{0.088 \cdot 4 \cdot kA(N-1)}{N}$

Solve for N.

$$CN = 0.088 \cdot 4 \cdot kAN - 0.088 \cdot 4 \cdot kA$$

$$0.088 \cdot 4 \cdot kAN - CN = 0.088 \cdot 4 \cdot kA$$

$$(0.088 \cdot 4 \cdot kA - C)N = 0.088 \cdot 4 \cdot kA$$

$$N = \frac{0.088 \cdot 4 \cdot kA}{0.088 \cdot 4 \cdot kA - C}$$

(9) $x = 1 - \frac{1}{a} \left(\frac{m}{k} \right)^2$

Solve for m.

$$x = 1 - \frac{m^2}{ak^2}$$

$$\frac{m^2}{ak^2} = 1 - x$$

$$m^2 = (1 - x)ak^2$$

$$m = \sqrt{(1 - x)ak^2}$$

$$m = k\sqrt{(1 - x)a}$$

(2) $R^2 = Z^2 - X^2$

Solve for X.

$$X^2 = Z^2 - R^2$$

$$X = \sqrt{Z^2 - R^2}$$

(4) $X_c = \frac{1}{2\pi fC}$

Solve for C.

$$CX_c = \frac{1}{2\pi f}$$

$$C = \frac{1}{2\pi fX_c}$$

(6) $\frac{Z_p}{Z_s} = \frac{N_P^2}{N_S}$

Solve for Z_s .

$$Z_p \cdot N_S = Z_s \cdot N_P^2$$

$$Z_s = \frac{Z_p \cdot N_S}{N_P^2}$$

(8) $P = 2\pi \sqrt{\frac{L}{g}}$

Solve for g.

$$P^2 = 4\pi^2 \frac{L}{g}$$

$$g = \frac{4\pi^2 L}{P^2}$$

(10) $v = \sqrt{\frac{2(E-mgh)}{m}}$

Solve for m.

$$v^2 = \frac{2E - 2mgh}{m}$$

$$v^2 m = 2E - 2mgh$$

$$(v^2 + 2gh)m = 2E$$

$$m = \frac{2E}{v^2 + 2gh}$$