

6.3

27 29 31 37 41 45-61 odd

(27) $X = \#$ years since 1983

$$43 + 1.5X = 100$$

$$\frac{1.5X}{1.5} = \frac{57}{1.5}$$

$$X = 38$$

$$1983 + 38 = \boxed{2021}$$

(29) $X = \#$ years till car's value is \$9000

$$24,000 - 3000X = 9000$$

$$\frac{15,000}{3000} = \frac{3000X}{3000}$$

$$5 = X$$

$\boxed{5 \text{ years till car } \$9000}$

(31) $X = \#$ months till club costs same

fee $\frac{A}{\$40}$

$\frac{B}{\$15}$

monthly \$25

\$30

$$\begin{array}{r} 40 + 25X = 15 + 30X \\ -15 \quad -25X \quad -15 \quad -25X \\ \hline \end{array}$$

$$\frac{25}{5} = \frac{5X}{5}$$

$$5 = X$$

$\boxed{5 \text{ months till clubs cost same.}}$

(37) $X =$ years since 2008 when enrollment will be same

	$\frac{A}{}$	$\frac{B}{}$
students	13,300	26,800
enrollment Δ	+1000/yr	-500/yr

$$\begin{array}{r} 13,300 + 1000(X) = 26,800 - 500(X) \\ -13,300 \quad +500X \quad -13,300 \quad +500X \\ \hline \end{array}$$

$$\frac{1500X}{1500} = \frac{13,500}{1500}$$

$$X = 9 \text{ years since 2008}$$

$\boxed{\text{Two colleges same enrollment in 2017.}}$

$$\begin{array}{r} 13,300 + 1000(9) \\ = 13,300 + 9000 = \boxed{22,300 \text{ students}} \end{array}$$

with \leftarrow

(41) $X =$ inn's nightly charge

$$X + .08X = 162$$

$$\frac{1.08X}{1.08} = \frac{162}{1.08}$$

$\boxed{X = \$150 \text{ nightly charge}}$

6.3

$$\textcircled{45} \quad A = L \frac{W}{W}$$

$$\boxed{\frac{A}{W} = L}$$

$$\textcircled{47} \quad 2A = \left(\frac{1}{2}bh\right) \cdot 2$$

$$\frac{2A}{h} = \frac{bh}{h}$$

$$\boxed{\frac{2A}{h} = b}$$

$$\textcircled{49} \quad I = Prt$$

$$\boxed{\frac{I}{rt} = P}$$

$$\textcircled{51} \quad E = mc^2$$

$$\frac{E}{c^2} = \frac{mc^2}{c^2}$$

$$\boxed{\frac{E}{c^2} = m}$$

$$\textcircled{53} \quad y = mx + b$$

$$\frac{y-b}{-b} = \frac{mx}{-b}$$

$$\boxed{\frac{y-b}{x} = m}$$

$$\textcircled{61} \quad a_n = a_1 + (n-1)d$$

$$\frac{a_n - a_1}{d} = \frac{(n-1)d}{d}$$

$$\frac{a_n - a_1}{d} = n - 1$$

$$\boxed{\frac{a_n - a_1}{d} + 1 = n \quad \text{or} \quad \frac{a_n - a_1 + d}{d}}$$

$$\textcircled{55} \quad A = \frac{1}{2}h(a+b) \cdot 2$$

$$\frac{2A}{h} = \frac{a+b}{h} \cdot 2$$

$$\frac{2A}{h} = \frac{a+b}{-b}$$

$$\frac{2A}{h} - b = a$$

$$\boxed{\frac{2A - bh}{h} = a}$$

$$\textcircled{57} \quad S = P + Prt$$

$$\frac{S-P}{-P} = \frac{Prt}{-P}$$

$$\frac{S-P}{Pt} = \frac{Prt}{Pt}$$

$$\boxed{\frac{S-P}{Pt} = r}$$

$$\textcircled{59} \quad Ax + By = c$$

$$\frac{Ax}{A} = \frac{c - By}{A}$$

$$\boxed{x = \frac{c - By}{A}}$$