

Algebra Chain Game

A) $A + 5 = 14$
 $\downarrow -5$
 $A = 9$
 $A = 9$

B) $2A - 4 = B$
 $2(9) - 4 = B$
 $18 - 4 = 14$
 $B = 14$

C) $28 = BC$
 $28 = 14C$
 $\frac{14}{14} \quad \frac{14}{14}$
 $2 = C$
 $C = 2$

D) $49 + C = D$
 $49 + 2 = 51$
 $D = 51$

E) $D - E = 48$
 $51 - E = 48$
 $-48 + E \quad -48 + E$
 $3 = E$
 $E = 3$

F) $EF = 27$
 $3F = 27$
 $\frac{3}{3}$
 $F = 9$
 $F = 9$

$$G) \quad 87 = G - F$$

$$\begin{array}{r} 87 = G - \cancel{9} \\ + 9 \qquad + 9 \end{array}$$

$$96 = G$$

$$G = \boxed{96}$$

$$H) \quad 36 = G - H$$

$$\begin{array}{r} 36 = 96 - H \\ + H - 36 \quad - 36 + H \end{array}$$

$$H = 60$$

$$H = \boxed{60}$$

$$I) \quad H - I = 42$$

$$\begin{array}{r} 60 - I = 42 \\ - 42 + I \quad - 42 + I \end{array}$$

$$18 = I$$

$$I = \boxed{18}$$

$$J) \quad 2I + 4 = J$$

$$\begin{array}{r} 2(18) + 4 = J \\ 36 + 4 = 40 \end{array}$$

$$J = \boxed{40}$$

$$K) \quad 7K - 9 = J$$

$$\begin{array}{r} 7K - \cancel{9} = 40 \\ + 9 \qquad + 9 \\ \hline 7K = 49 \\ \hline K = 7 \end{array}$$

$$K = \boxed{7} \quad K = 7$$

$$L) \quad 4K - 26 = L$$

$$\begin{array}{r} 4(7) - 26 = L \\ 28 - 26 = 2 \end{array}$$

$$L = \boxed{2}$$

$$M) 120 \div M = L$$

$$120 \div M = 2$$

$$\cancel{2} M = \cancel{2} 120$$

$$M = \boxed{60} \quad (M = 60)$$

$$N) 4N - 4 = M$$

$$4N - \cancel{4} = 60$$

$$+ 4 \quad + 4$$

$$\cancel{4} N = 64$$

$$N = \boxed{16} \quad (N = 16)$$

letter O

$$O) 3O - 17 = N$$

$$3O - \cancel{17} = 16$$

$$+ 17 = + 17$$

$$\cancel{3} O = \cancel{3} 33$$

$$O = \boxed{11} \quad (O = 11)$$

$$P) 11O - P = 99$$

$$11(O) - P = 99$$

$$121 - P = 99$$

$$- 99 \quad + P \quad - 99 \quad + P$$

$$P = \boxed{22} \quad (22 = P)$$

$$Q) P + Q = 43$$

$$\begin{array}{r} 22 + Q = 43 \\ - 22 \quad - 22 \end{array}$$

$$(Q = 21)$$

$$Q = \boxed{21}$$

$$R) Q = R - 8$$

$$21 = R - \cancel{8}$$

$$+ 8 \quad + 8$$

$$(29 = R)$$

$$R = \boxed{29}$$

$$S) \sqrt{R+7} = S$$

$$\sqrt{29+7} = S$$

$$\sqrt{36} = S$$

$$S = \boxed{6} \quad \sqrt{36} = 6$$

$$T) \sqrt{T} = S + 6$$

$$\sqrt{T} = 6 + 6$$

$$(\sqrt{T})^2 = (12)^2$$

$$T = \boxed{144} \quad T = 144$$

$$U) U^2 - 25 = T$$

$$U^2 - 25 = 144$$

$$+ 25 \quad + 25$$

$$U^2 = 169$$

$$U = \boxed{13} \quad U = 13$$

$$V) (U+2)^2 = V$$

$$(13+2)^2 = V$$

$$15^2 = V$$

$$V = \boxed{225} \quad V = 225$$

$$W) V \div 5 = W$$

$$225 \div 5 = W$$

$$45 = W$$

$$W = \boxed{45}$$

$$X) \sqrt{X} + 36 = W$$

$$\sqrt{X} + 36 = 45$$

$$(\sqrt{X})^2 = (9)^2$$

$$X = \boxed{81} \quad X = 81$$

$$\begin{aligned}
 Y) \quad 3Y &= X \\
 \frac{3Y}{3} &= \frac{81}{3} \\
 Y &= 27
 \end{aligned}$$

$$\begin{aligned}
 Z) \quad \sqrt{Y-Z} &= 2 \\
 (\sqrt{27-Z})^2 &= (2)^2 \\
 27-Z &= 4 \\
 -4 + Z &= -4 + Z \\
 Z &= 23
 \end{aligned}$$

| | | | |
|-------|-------|--------|-------|
| A) 9 | H) 60 | P) 22 | X) 81 |
| B) 14 | I) 18 | Q) 21 | Y) 27 |
| C) 2 | J) 40 | R) 29 | Z) 23 |
| D) 51 | K) 7 | S) 6 | |
| E) 3 | L) 2 | T) 144 | |
| F) 9 | M) 60 | U) 13 | |
| G) 96 | N) 16 | V) 225 | |
| | O) 11 | W) 45 | |