Beginner 1

Goal 1: $1, 1, 1 \Longrightarrow 1, 4$

$$\begin{aligned} 1 \times (1+1) &= 2 \\ (1+1)+1 &= 3 \end{aligned}$$

Goal 2: $1, 2, 3 \Longrightarrow 2, 5$

$$\begin{aligned} 3 \times (2-1) &= 3 \\ (3+2)-1 &= 4 \end{aligned}$$

Goal 3: $1, 2, 4 \Longrightarrow 5, 8$

$$\begin{aligned} 2 \times (4-1) &= 6 \\ (1+2)+4 &= 7 \end{aligned}$$

Beginner 2

Goal 1: $1, 2, 5 \Longrightarrow 5, 8$

$$\begin{aligned} (5+2)-1 &= 6 \\ 1 \times (5+2) &= 7 \end{aligned}$$

Goal 2: $1, 2, 6 \Longrightarrow 2, 5$

$$\begin{aligned} (6-2)-1 &= 3 \\ 6-(2 \times 1) &= 4 \end{aligned}$$

Goal 3: $1, 3, 5 \Longrightarrow 6, 9$

$$\begin{aligned} (5+3)-1 &= 7 \\ 1 \times (5+3) &= 8 \end{aligned}$$

Beginner 3

Goal 1: $1, 3, 6 \Longrightarrow 1, 4$

$$\begin{aligned} (6-3)-1 &= 2 \\ 6-(3 \times 1) &= 3 \end{aligned}$$

Goal 2: $2, 3, 5 \Longrightarrow 4, 7$

$$\begin{aligned} 5 \times (3-2) &= 5 \\ (5+3)-2 &= 6 \end{aligned}$$

Goal 3: $3, 5, 6 \Longrightarrow 1, 4$

$$\begin{aligned} (5+3)-6 &= 2 \\ 3 \times (6-5) &= 3 \end{aligned}$$

Beginner 4

Goal 1: $1, 3, 5 \Longrightarrow 1, 4$

$$\begin{aligned} 5-(3 \times 1) &= 2 \\ (5+1)-3 &= 3 \end{aligned}$$

Goal 2: $2, 2, 6 \Longrightarrow 9, 15$

$$\begin{aligned} (2+2)+6 &= 10 \\ 2+(6 \times 2) &= 14 \end{aligned}$$

Goal 3: $4, 4, 5 \Longrightarrow 2, 5$

$$\begin{aligned} (4+4)-5 &= 3 \\ 4 \times (5-4) &= 4 \end{aligned}$$

Beginner 5

Goal 1: $1, 1, 4 \Longrightarrow 5, 9$

$$(1+1)+4 = 6$$
$$4 \times (1+1) = 8$$

Goal 2: $1, 2, 4 \Longrightarrow 8, 11$

$$1+(4 \times 2) = 9$$
$$2 \times (4+1) = 10$$

Goal 3: $1, 3, 4 \Longrightarrow 8, 12$

$$3 \times (4-1) = 9$$
$$(4 \times 3)-1 = 11$$

Beginner 6

Goal 1: $1, 3, 5 \Longrightarrow 14, 17$

$$(1 \times 3) \times 5 = 15$$
$$1+(5 \times 3) = 16$$

Goal 2: $2, 3, 5 \Longrightarrow 5, 8$

$$(5+3)-2 = 6$$
$$(5 \times 2)-3 = 7$$

Goal 3: $3, 3, 5 \Longrightarrow 11, 15$

$$(5 \times 3)-3 = 12$$
$$5+(3 \times 3) = 14$$

Beginner 7

Goal 1: $1, 2, 6 \Longrightarrow 2, 5$

$$(6-2)-1 = 3$$
$$6-(2 \times 1) = 4$$

Goal 2: $1, 2, 5 \Longrightarrow 10, 13$

$$1+(5 \times 2) = 11$$
$$2 \times (5+1) = 12$$

Goal 3: $2, 2, 5 \Longrightarrow 8, 13$

$$(2+2)+5 = 9$$
$$2+(5 \times 2) = 12$$

Beginner 8

Goal 1: $2, 3, 4 \Longrightarrow 1, 4$

$$2 \times (4-3) = 2$$
$$(4+2)-3 = 3$$

Goal 2: $4, 4, 6 \Longrightarrow 5, 10$

$$(6+4)-4 = 6$$
$$4 \times (6-4) = 8$$

Goal 3: $3, 6, 6 \Longrightarrow 8, 13$

$$(6+6)-3 = 9$$
$$(6 \times 3)-6 = 12$$

Beginner 9

Goal 1: $3, 3, 3 \Longrightarrow 10, 20$

$$3 + (3 \times 3) = 12$$
$$3 \times (3 + 3) = 18$$

Goal 2: $3, 3, 4 \Longrightarrow 3, 6$

$$(4 + 3) - 3 = 4$$
$$(3 \times 3) - 4 = 5$$

Goal 3: $3, 3, 5 \Longrightarrow 13, 19$

$$5 + (3 \times 3) = 14$$
$$3 + (5 \times 3) = 18$$

Beginner 10

Goal 1: $1, 2, 3 \Longrightarrow 7, 10$

$$2 \times (3 + 1) = 8$$
$$3 \times (2 + 1) = 9$$

Goal 2: $2, 3, 4 \Longrightarrow 13, 19$

$$2 \times (4 + 3) = 14$$
$$3 \times (4 + 2) = 18$$

Goal 3: $3, 4, 5 \Longrightarrow 6, 9$

$$(4 \times 3) - 5 = 7$$
$$4 \times (5 - 3) = 8$$

Beginner 11

Goal 1: $1, 3, 5 \Longrightarrow 0, 3$

$$(5 - 3) - 1 = 1$$
$$5 - (3 \times 1) = 2$$

Goal 2: $2, 5, 5 \Longrightarrow 14, 21$

$$5 \times (5 - 2) = 15$$
$$2 \times (5 + 5) = 20$$

Goal 3: $3, 5, 6 \Longrightarrow 13, 16$

$$(3 + 5) + 6 = 14$$
$$5 \times (6 - 3) = 15$$

Beginner 12

Goal 1: $2, 2, 4 \Longrightarrow 8, 14$

$$2 + (4 \times 2) = 10$$
$$2 \times (4 + 2) = 12$$

Goal 2: $1, 4, 6 \Longrightarrow 17, 21$

$$6 \times (4 - 1) = 18$$
$$4 \times (6 - 1) = 20$$

Goal 3: $4, 5, 6 \Longrightarrow 13, 16$

$$(5 \times 4) - 6 = 14$$
$$(4 + 5) + 6 = 15$$

Intermediate 1

Goal 1: $1, 2, 6 \Longrightarrow 13, 19$

$$\begin{aligned} 2 \times (6 + 1) &= 14 \\ 6 \times (2 + 1) &= 18 \end{aligned}$$

Goal 2: $1, 3, 6 \Longrightarrow 11, 16$

$$\begin{aligned} 6 \times (3 - 1) &= 12 \\ 3 \times (6 - 1) &= 15 \end{aligned}$$

Goal 3: $1, 4, 6 \Longrightarrow 19, 24$

$$\begin{aligned} 4 \times (6 - 1) &= 20 \\ (6 \times 4) - 1 &= 23 \end{aligned}$$

Intermediate 2

Goal 1: $3, 3, 4 \Longrightarrow 20, 25$

$$\begin{aligned} 3 \times (4 + 3) &= 21 \\ 4 \times (3 + 3) &= 24 \end{aligned}$$

Goal 2: $4, 4, 6 \Longrightarrow 6, 9$

$$\begin{aligned} 6 + (4 \div 4) &= 7 \\ 4 \times (6 - 4) &= 8 \end{aligned}$$

Goal 3: $1, 5, 5 \Longrightarrow 0, 3$

$$\begin{aligned} (5 + 1) - 5 &= 1 \\ 1 + (5 \div 5) &= 2 \end{aligned}$$

More equations:

$$\begin{aligned} 1 \div (5 \times 5) &= 0.04 \\ 1 \div (5 + 5) &= 0.1 \\ (5 - 1) \div 5 &= 0.8 \\ 5 \div (5 + 1) &\approx 0.8333 \\ (5 + 1) \div 5 &= 1.2 \\ 5 \div (5 - 1) &= 1.25 \end{aligned}$$

Intermediate 3

Goal 1: $2, 3, 4 \Longrightarrow 19, 25$

$$\begin{aligned} 4 \times (3 + 2) &= 20 \\ (2 \times 3) \times 4 &= 24 \end{aligned}$$

Goal 2: $2, 5, 6 \Longrightarrow 19, 23$

$$\begin{aligned} 5 \times (6 - 2) &= 20 \\ 2 \times (6 + 5) &= 22 \end{aligned}$$

Goal 3: $3, 4, 6 \Longrightarrow 28, 38$

$$\begin{aligned} 3 \times (6 + 4) &= 30 \\ 4 \times (6 + 3) &= 36 \end{aligned}$$

Intermediate 4

Goal 1: $3, 5, 6 \Longrightarrow 9, 13$

$$\begin{aligned} (6 \times 5) \div 3 &= 10 \\ 6 \times (5 - 3) &= 12 \end{aligned}$$

Goal 2: $2, 2, 6 \Longrightarrow 3, 6$

$$\begin{aligned} (6 + 2) \div 2 &= 4 \\ 6 - (2 \div 2) &= 5 \end{aligned}$$

Goal 3: $3, 4, 6 \Longrightarrow 1, 6$

$$\begin{aligned} 4 - (6 \div 3) &= 2 \\ (6 + 3) - 4 &= 5 \end{aligned}$$

More equations:

$$\begin{aligned} (4 + 3) \div 6 &\approx 1.1667 \\ 4 \div (6 - 3) &\approx 1.3333 \\ 3 \div (6 - 4) &= 1.5 \\ (6 + 3) \div 4 &= 2.25 \\ 3 - (4 \div 6) &\approx 2.3333 \\ (6 + 4) \div 3 &\approx 3.3333 \\ 4 - (3 \div 6) &= 3.5 \\ 3 + (4 \div 6) &\approx 3.6667 \\ 3 + (6 \div 4) &= 4.5 \\ 6 - (4 \div 3) &\approx 4.6667 \\ 6 - (3 \div 4) &= 5.25 \end{aligned}$$

Intermediate 5

Goal 1: $1, 2, 5 \Longrightarrow 10, 13$

$$\begin{aligned} 1 + (5 \times 2) &= 11 \\ 2 \times (5 + 1) &= 12 \end{aligned}$$

Goal 2: $2, 4, 6 \Longrightarrow 4, 8$

$$\begin{aligned} (6 + 4) \div 2 &= 5 \\ 4 + (6 \div 2) &= 7 \end{aligned}$$

Goal 3: $5, 5, 6 \Longrightarrow 18, 26$

$$\begin{aligned} (5 \times 5) - 6 &= 19 \\ (6 \times 5) - 5 &= 25 \end{aligned}$$

More equations:

$$\begin{aligned} 4 + (2 \div 6) &\approx 4.3333 \\ 6 - (2 \div 4) &= 5.5 \\ 6 + (2 \div 4) &= 6.5 \end{aligned}$$

Intermediate 6

Goal 1: $1, 5, 6 \Longrightarrow 23, 26$

$$\begin{aligned} 6 \times (5 - 1) &= 24 \\ 5 \times (6 - 1) &= 25 \end{aligned}$$

Goal 2: $5, 6, 6 \Longrightarrow 3, 6$

$$\begin{aligned} 5 - (6 \div 6) &= 4 \\ (6 + 5) - 6 &= 5 \end{aligned}$$

More equations:

$$\begin{aligned} 6 - (6 \div 5) &= 4.8 \\ 6 - (5 \div 6) &\approx 5.1667 \end{aligned}$$

Goal 3: $2, 2, 4 \Longrightarrow 0, 4$

$$\begin{aligned} 2 \div (4 - 2) &= 1 \\ 4 - (2 \div 2) &= 3 \end{aligned}$$

More equations:

$$\begin{aligned} 2 \div (4 \times 2) &= 0.25 \\ 2 \div (4 + 2) &\approx 0.3333 \\ 2 - (2 \div 4) &= 1.5 \\ 2 + (2 \div 4) &= 2.5 \end{aligned}$$

Intermediate 7

Goal 1: $1, 4, 5 \Longrightarrow 23, 26$

$$\begin{aligned} 4 \times (5 + 1) &= 24 \\ 5 \times (4 + 1) &= 25 \end{aligned}$$

Goal 2: $2, 3, 3 \Longrightarrow 9, 13$

$$\begin{aligned} 2 + (3 \times 3) &= 11 \\ 2 \times (3 + 3) &= 12 \end{aligned}$$

Goal 3: $3, 5, 5 \Longrightarrow 25, 35$

$$\begin{aligned} 3 + (5 \times 5) &= 28 \\ 3 \times (5 + 5) &= 30 \end{aligned}$$

Intermediate 8

Goal 1: $2, 3, 6 \Longrightarrow 15, 19$

$$\begin{aligned} (6 \times 3) - 2 &= 16 \\ 2 \times (6 + 3) &= 18 \end{aligned}$$

Goal 2: $2, 4, 5 \Longrightarrow 31, 41$

$$(2 \times 4) \times 5 = 40$$

Goal 3: $3, 3, 6 \Longrightarrow 14, 28$

$$\begin{aligned} (6 \times 3) - 3 &= 15 \\ 3 + (6 \times 3) &= 21 \\ 3 \times (6 + 3) &= 27 \end{aligned}$$

Intermediate 9

Goal 1: $4, 5, 6 \Longrightarrow 30, 50$

$$\begin{aligned} 4 + (6 \times 5) &= 34 \\ 4 \times (6 + 5) &= 44 \end{aligned}$$

Goal 2: $3, 4, 5 \Longrightarrow 6, 12$

$$\begin{aligned} (4 \times 3) - 5 &= 7 \\ 4 \times (5 - 3) &= 8 \\ (5 \times 3) - 4 &= 11 \end{aligned}$$

Goal 3: $1, 4, 5 \Longrightarrow 15, 17$

$$4 \times (5 - 1) = 16$$

More equations:

$$\begin{aligned} 5 + (4 \div 3) &\approx 6.3333 \\ (5 \times 4) \div 3 &\approx 6.6667 \end{aligned}$$

Intermediate 10

Goal 1: $2, 3, 6 \Longrightarrow 20, 30$

$$3 \times (6 + 2) = 24$$

Goal 2: $2, 3, 5 \Longrightarrow 15, 22$

$$\begin{aligned} 2 \times (5 + 3) &= 16 \\ 2 + (5 \times 3) &= 17 \\ 3 \times (5 + 2) &= 21 \end{aligned}$$

Goal 3: $2, 3, 4 \Longrightarrow 9, 12$

$$\begin{aligned} (4 \times 3) - 2 &= 10 \\ 3 + (4 \times 2) &= 11 \end{aligned}$$

Intermediate 11

Goal 1: $2, 5, 6 \Longrightarrow 14, 18$

$$\begin{aligned} (6 \times 5) \div 2 &= 15 \\ 6 + (5 \times 2) &= 16 \\ 5 + (6 \times 2) &= 17 \end{aligned}$$

Goal 2: $4, 5, 6 \Longrightarrow 50, 110$

$$6 \times (5 + 4) = 54$$

Goal 3: $3, 5, 6 \Longrightarrow 9, 13$

$$\begin{aligned} (6 \times 5) \div 3 &= 10 \\ 6 \times (5 - 3) &= 12 \end{aligned}$$

Intermediate 12

Goal 1: $4, 6, 6 \Longrightarrow 4, 10$

$$\begin{aligned} 4 + (6 \div 6) &= 5 \\ (6 + 6) - 4 &= 8 \\ (6 \times 6) \div 4 &= 9 \end{aligned}$$

More equations:

$$\begin{aligned} 6 - (6 \div 4) &= 4.5 \\ 6 - (4 \div 6) &\approx 5.3333 \\ 6 + (4 \div 6) &\approx 6.6667 \\ 6 + (6 \div 4) &= 7.5 \end{aligned}$$

Goal 2: $3, 6, 6 \Longrightarrow 3, 9$

$$\begin{aligned} 6 - (6 \div 3) &= 4 \\ 6 + (6 \div 3) &= 8 \end{aligned}$$

More equations:

$$\begin{aligned} 6 - (3 \div 6) &= 5.5 \\ 6 + (3 \div 6) &= 6.5 \end{aligned}$$

Goal 3: $3, 4, 6 \Longrightarrow 7, 12$

$$(6 \times 4) \div 3 = 8$$

More equations:

$$6 + (4 \div 3) \approx 7.3333$$

Advanced 1

Goal 1: $2, 2, 3 \Longrightarrow 9, 12$

$$2 \times (3 + 2) = 10$$
$$2 + (3^2) = 11$$

Goal 2: $1, 2, 4 \Longrightarrow 11, 16$

$$4 \times (2 + 1) = 12$$
$$(4^2) - 1 = 15$$

Goal 3: $1, 2, 2 \Longrightarrow 7, 10$

$$2^{(2+1)} = 8$$
$$(2 + 1)^2 = 9$$

Advanced 2

Goal 1: $1, 2, 5 \Longrightarrow 14, 17$

$$5 \times (2 + 1) = 15$$
$$2^{(5-1)} = 16$$

Goal 2: $2, 3, 5 \Longrightarrow 12, 15$

$$(5 \times 3) - 2 = 13$$
$$5 + (3^2) = 14$$

Goal 3: $2, 2, 4 \Longrightarrow 11, 15$

$$2 \times (4 + 2) = 12$$
$$(4^2) - 2 = 14$$

Advanced 3

Goal 1: $1, 1, 5 \Longrightarrow 24, 33$

$$5^{(1+1)} = 25$$
$$(1 + 1)^5 = 32$$

Goal 2: $3, 3, 4 \Longrightarrow 22, 25$

$$(3^3) - 4 = 23$$
$$4 \times (3 + 3) = 24$$

Goal 3: $2, 5, 6 \Longrightarrow 17, 20$

$$6 \times (5 - 2) = 18$$
$$(5^2) - 6 = 19$$

Advanced 4

Goal 1: $1, 3, 4 \Longrightarrow 2, 5$

$$4 - (1^3) = 3$$
$$4 \div (1^3) = 4$$

Goal 2: $1, 2, 6 \Longrightarrow 30, 36$

$$2^{(6-1)} = 32$$
$$(6^2) - 1 = 35$$

Goal 3: $2, 2, 3 \Longrightarrow 15, 19$

$$2 \times (2^3) = 16$$
$$2 \times (3^2) = 18$$

More equations:

$$1 + (4 \div 3) \approx 2.3333$$
$$3 - (1 \div 4) = 2.75$$
$$3 + (1 \div 4) = 3.25$$
$$4 - (1 \div 3) \approx 3.6667$$
$$4 + (1 \div 3) \approx 4.3333$$

Advanced 5

Goal 1: $2, 2, 6 \Longrightarrow 61, 65$

$$(2^6) - 2 = 62$$
$$(6 + 2)^2 = 64$$

Goal 2: $2, 5, 5 \Longrightarrow 34, 38$

$$5 \times (5 + 2) = 35$$
$$5 + (2^5) = 37$$

Goal 3: $3, 3, 4 \Longrightarrow 26, 32$

$$(3^4) \div 3 = 27$$
$$4 + (3^3) = 31$$

Advanced 6

Goal 1: $2, 3, 4 \Longrightarrow 11, 14$

$$4 + (2^3) = 12$$
$$(4^2) - 3 = 13$$

Goal 2: $2, 3, 4 \Longrightarrow 17, 20$

$$3 \times (4 + 2) = 18$$
$$3 + (4^2) = 19$$

Goal 3: $2, 3, 4 \Longrightarrow 47, 50$

$$3 \times (4^2) = 48$$
$$(4 + 3)^2 = 49$$

Advanced 7

Goal 1: $2, 4, 5 \Longrightarrow 28, 33$

$$\begin{aligned} 4 + (5^2) &= 29 \\ 5 \times (4 + 2) &= 30 \\ 4^{(5 \div 2)} &= 32 \end{aligned}$$

Goal 2: $4, 5, 6 \Longrightarrow 30, 33$

$$(6 - 4)^5 = 32$$

Goal 3: $2, 4, 6 \Longrightarrow 8, 11$

$$\begin{aligned} (6^2) \div 4 &= 9 \\ (4^2) - 6 &= 10 \end{aligned}$$

Advanced 8

Goal 1: $4, 6, 6 \Longrightarrow 0, 4$

$$\begin{aligned} 4^{(6-6)} &= 1 \\ 6 \div (6 - 4) &= 3 \end{aligned}$$

Goal 2: $2, 2, 5 \Longrightarrow 48, 51$

$$\begin{aligned} (5 + 2)^2 &= 49 \\ 2 \times (5^2) &= 50 \end{aligned}$$

Goal 3: $3, 5, 6 \Longrightarrow 115, 130$

$$\begin{aligned} (5^3) - 6 &= 119 \\ 5^{(6-3)} &= 125 \end{aligned}$$

More equations:

$$\begin{aligned} 4 \div (6^6) &\approx 0.0001 \\ 6 \div (4^6) &\approx 0.0015 \\ 6 \div (6^4) &\approx 0.0046 \\ 6^{(4-6)} &\approx 0.0278 \\ (4 \div 6)^6 &\approx 0.0878 \\ 4 \div (6 \times 6) &\approx 0.1111 \\ 6 \div (6 \times 4) &= 0.25 \\ 4 \div (6 + 6) &\approx 0.3333 \\ 6 \div (6 + 4) &= 0.6 \\ (6 + 4) \div 6 &\approx 1.6667 \\ 6^{(4 \div 6)} &\approx 3.3019 \end{aligned}$$

Advanced 9

Goal 1: $3, 3, 4 \Longrightarrow 40, 65$

$$(4^3) - 3 = 61$$

Goal 2: $2, 4, 5 \Longrightarrow 79, 82$

$$5 \times (4^2) = 80$$
$$(5 - 2)^4 = 81$$

Goal 3: $3, 5, 6 \Longrightarrow 31, 37$

$$(6 \div 3)^5 = 32$$
$$3 \times (6 + 5) = 33$$
$$6^{(5-3)} = 36$$

Advanced 10

Goal 1: $2, 3, 6 \Longrightarrow 7, 10$

$$2^{(6-3)} = 8$$
$$(6 \times 2) - 3 = 9$$

Goal 2: $2, 2, 6 \Longrightarrow 30, 36$

$$(2^6) \div 2 = 32$$
$$(6^2) - 2 = 34$$

Goal 3: $2, 3, 3 \Longrightarrow 23, 26$

$$3 \times (2^3) = 24$$
$$(3^3) - 2 = 25$$

More equations:

$$6 + (3 \div 2) = 7.5$$

Advanced 11

Goal 1: $3, 3, 4 \Longrightarrow 26, 32$

$$(3^4) \div 3 = 27$$
$$4 + (3^3) = 31$$

Goal 2: $2, 3, 5 \Longrightarrow 26, 30$

$$3^{(5-2)} = 27$$
$$3 + (5^2) = 28$$
$$(2^5) - 3 = 29$$

Goal 3: $1, 3, 6 \Longrightarrow 25, 60$

$$6^{(3-1)} = 36$$

Advanced 12

Goal 1: $2, 5, 6 \Longrightarrow 120, 126$

$$(6 + 5)^2 = 121$$
$$5^{(6 \div 2)} = 125$$

Goal 2: $3, 5, 5 \Longrightarrow 23, 27$

$$5^{(5-3)} = 25$$

Goal 3: $2, 4, 6 \Longrightarrow 80, 105$

$$(6 \div 2)^4 = 81$$
$$6 \times (4^2) = 96$$
$$(6 + 4)^2 = 100$$