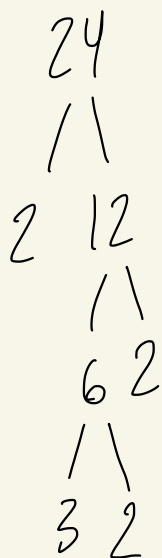




$$(x-3) + y + (z-1)$$

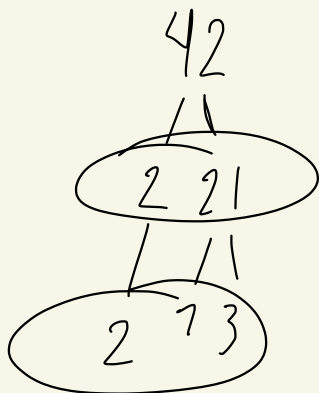


$$2 \cdot 3 \cdot 2 \cdot 2$$

$$\boxed{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}$$

$$(x-1)(x+5)=0$$

$$\boxed{x=1, x=-5}$$



$$14 \cdot 3$$

$$6 \cdot 7$$

$$21 \cdot 2$$

60
 11
 6 10
 11 1
 3 2 5 2

30
 11
 3 10
 1 11
 3 5 2

6 · 4 6 · 11
 6 (4 + 11)

$$(6 \cdot 4) + (6 \cdot 11) = 6(4 + 11)$$

$$24 + 66 = 6(15)$$

$$90 = 90 \checkmark$$

20 24
~~2 × 10 1 × 24~~
~~4 × 5 6 × 4~~
~~1 × 20 12 × 2~~
 8 × 3

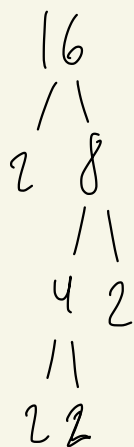
$$(a+b)^2 = (a+b)(a+b)$$

$$a^2 + ab + ab + b^2$$

$$a^2 + 2ab + b^2$$

30	40
11	11
10 3	4 10
11 1	11 11
2 5 3	2 2 5 2

30	40
3 · 10	2 · 20
15 · 2	4 · 10
6 · 5	8 · 5



$$2 \cdot 2 \cdot 2 \cdot 2$$

$$4 \cdot 2 \cdot 2$$

$$4 \cdot 4$$

$$4, 2, 8$$



$$3 \cdot 3 \cdot 2 \cdot 2$$

$$9 \cdot 4$$

$$3 \cdot 6 \cdot 2$$

$$3 \cdot 12$$

$$6 \cdot 6$$

$$2, 4, 9, 12, 3, 6, 18$$

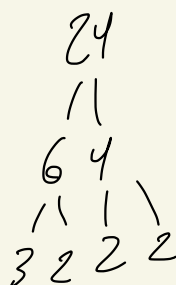


$$3 \cdot 3 \cdot 2$$

$$3 \cdot 6$$

$$9 \cdot 2$$

$$2, 3, 6, 9$$



$$3 \cdot 2 \cdot 2 \cdot 2$$

$$6 \cdot 4$$

$$3 \cdot 8$$

$$12 \cdot 2$$

$$2, 3, 6, 8, 12$$

$$\begin{array}{c}
 25 \\
 / \quad \backslash \\
 5 \quad 5
 \end{array}$$

$$\begin{array}{cc}
 20 & 32 \\
 \wedge & \wedge \\
 4 & 5 \\
 \wedge & \wedge \\
 2 & 2 \\
 2 \cdot 2 \cdot 5 & 2 \cdot 2 \cdot 2 \cdot 2
 \end{array}$$

$$2 \cdot 2 \cdot 5$$

$$\underbrace{2, 4, 5, 10} \quad 2, 4, 8, 16$$

(3)

$$\begin{array}{c}
 2x = 0 \\
 \frac{2}{2} \quad \frac{2}{2} \\
 x = 0
 \end{array}$$

$$\begin{array}{cc}
 32 & 42 \\
 | & \wedge \\
 2, 4, 8, 16 & 2, 3, 6, 7, 14, 21
 \end{array} \quad (2)$$

$$\begin{array}{cc}
 20 & 42 \\
 | & \wedge \\
 2, 4, 5, 10 & 2, 3, 6, 7, 14, 21
 \end{array} \quad (2)$$

$$\begin{array}{l}
 2x^3 - 18x^2 + 40x = 0 \\
 2x(x^2 - 9x + 20) = 0
 \end{array}$$

$$x^2 - 9x + 20$$

$$(x-4)(x-5)$$

$$x=4 \quad x=5$$

$$x = \{0, 4, 5\}$$

$$(4)(3) + (2)(7)$$

$$(2)(2)(3) + (2)(7)$$

$$(2)(6) + (2)(7)$$

$$2(6+7)$$

$$54 + 60 + 72$$

$$6(9 + 10 + 12)$$

$$x, y, xy$$

$$2ab^3 + 5b^3 + 7b^4$$

$$b^3(2a + 5 + 7b)$$

$$b^3(2a + 7b + 5)$$

$$6a + 2b$$

$$2(3a + b)$$

$$6a^2bc + 18a^2b^2c - 24abc^2 = 0$$

$$6abc(a + 3ab - 4c) = 0$$

$$32$$

$$/1$$

$$16 \quad 2$$

$$/1$$

$$8 \quad 2$$

$$/1$$

$$4 \quad 2$$

$$/1$$

$$22$$

84

11

12 7

11

6 2

11

3 2

2

28

 $\times 3$ $\frac{84}{28}$

40

11

8 5

11

2 4

11

22

 $2 \cdot 2 \cdot 2 \cdot 5$

45

11

9 5

11 1

3 3 5

1, 3, 5, 9, 15,

 $1, 2, 4, 5, 8, 10, 20, 40$

5

 $4(x(3(x(2(x+1))))))$ $x(2x+2)$ $3(2x^2+2x)$ $x(6x^2+6x)$ $6x^3+6x^2$ \rightarrow $4(6x^3+6x^2)$ $24x^3+24x^2$ $24x^3+24x^2$

$$4(x+3) = 12$$

$$4x + 12 = 12$$

$$\quad -12 \quad -12$$

$$\frac{4x}{4} = \frac{0}{4}$$

$$\boxed{x = 0}$$

$$4x(5-x) - 12(5-x) + 100 = 100$$

$$20x - 4x^2 - 60 + 12x + 100 = 100$$

$$\quad \quad \quad -100 \quad -100$$

$$20x - 4x^2 - 60 + 12x = 0$$

$$-4x^2 + 32x - 60 = 0$$

$$-4(x^2 - 8x + 15) = 0$$

$$-4(x-3)(x-5) = 0$$

$$(x+3)(x+4)$$

$$x^2 + 4x + 3x + 12$$

$$\boxed{x^2 + 7x + 12}$$

$$-4 \neq 0 \quad x = 3 \quad x = 5$$

$$\boxed{x = \{3, 5\}}$$

$$(a+b)(c+d)$$

$$ac + ad + bc + bd$$

$$(2x + y)(z + 7 + x)$$

$$2xz + 14x + 2x^2 + yz + 7y + xy$$

$$\boxed{2x^2 + 2xz + xy + 14x + 7y + yz}$$

$$(a + b)(2b + a)$$

$$2ab + a^2 + 2b^2 + ab$$

$$\boxed{a^2 + 3ab + 2b^2}$$

$$8 + 3(10) + 3(12)$$

$$8 + 30 + 36$$

$$\begin{array}{r} 66 + 8 \\ \hline 74 \end{array}$$

$$1x + 2x + 3x + 4x + 5x, x = 13$$

$$15x, x = 13$$

$$15(13)$$

$$\boxed{195}$$

$$\begin{array}{r} 15 \\ \times 13 \\ \hline 45 \\ 15 \\ \hline 195 \end{array}$$

$$3 + 8x - 8 + 3x + 5 = 22$$

$$\frac{11x}{11} = \frac{22}{11}$$

$$\boxed{x = 2}$$

$$2x + 3x + 4 + 16$$

$$5x + 20$$

$$2x^2 + 2x + 4x + x^2 = 2x^2 + 2x + 4x + x^2$$

$$3x^2 + 6x = 3x^2 + 6x$$

$$2xy + x^2 + 3x^2 + y + xy + 5y$$

$$4x^2 + 3xy + 6y$$

$$2c^2 - 5c^2 + 2b^2 + 3c^2 = 4bc + 2b^2 + bc + 1 - 5bc$$

$$-3c^2 + 3c^2 + 2b^2 = 5bc + 2b^2 - 5bc + 1$$

$$2b^2 = 2b^2 + 1$$

$$-2b^2 - 2b^2$$

$$0 \neq 1$$

$$x^3 - 8x^2 + 3x^2 + 3x^3 - 7x^2 = x + \cancel{2x^3} - \cancel{2x} - \cancel{2x^3} + x$$

$$4x^3 - 12x^2 = \cancel{-x} + \cancel{x}$$

$$4x^3 - 12x^2 = 0$$

$$4x^2(x - 3) = 0$$

$$4x^2 = 0$$

$$x - 3 = 0$$

$$\frac{4}{4} \quad \frac{4}{4}$$

$$x = 3$$

$$\cancel{4x^2 = 0}$$

$$x = 0$$

$$x = \{0, 3\}$$

$$2^3 + 4c^3 + 3c^4 + 2a^2 + 2a^2 + 1$$

$$8 + 3c^4 + 4c^3 + 4a^2 + 1$$

$$3c^4 + 4c^3 + 4a^2 + 9$$

$$2c^2 - 5c^2 + 2b^2 + 3c^2$$

$$4bc + 2b^2 + bc + 1 - 5bc$$

$$\cancel{5c^2} - \cancel{5c^2} + 2b^2$$

$$\cancel{5bc} + 2b^2 + 1 - \cancel{5bc}$$

$$2b^2$$

<

$$2b^2 + 1$$

$$2x^3 + 3x^2 + 6x^3 + 5x^2 - 5x^3 - 4x^2 - 3x^3$$

$$\cancel{3x^3} - \cancel{3x^3} + 4x^2 \Rightarrow 4x^2$$

$$4x^3 - 3x^4 - 5x^3 - 2x^4 + 6x^3 + 5x^4 - x^3$$

$$\cancel{4x^3} - \cancel{5x^4} + \cancel{5x^4} \Rightarrow 4x^3$$

$$4x^2 < 4x^3$$

$$7a(2b+4c^2) - 2a(14c^2 + 7b)$$

$$\cancel{14ab} + \cancel{28ac^2} - \cancel{28ac^2} - \cancel{14ab}$$

$$\boxed{0}$$

$$(n+1)^2 - n^2$$

$$(n+1)(n+1) - n^2$$

$$\cancel{n^2} + n + n + 1 - \cancel{n^2}$$

$$\boxed{2n + 1}$$

$$(2m + 8n)(5n + 10m)$$

$$10mn + 20m^2 + 40n^2 + 80mn$$

$$\boxed{20m^2 + 40n^2 + 90mn}$$

$$2n(5mn + 1) - 2(10 + n)$$

$$10mn^2 + \cancel{2n} - 20 - \cancel{2n}$$

$$\boxed{10mn^2 - 20}$$

$$5(1 + 2(2m + n))$$

$$5(3(2m + n))$$

$$5(6m + 3n)$$

$$\boxed{30m + 15n}$$

$$-5ab^2c^2$$

$$5(1+2n) - 6(1+n) \checkmark$$

$$5 + 10n - 6 - 6n$$

$$-1 + 4n = \boxed{4n - 1}$$

$$3n - 7 - (-n - 6) \checkmark$$

$$3n - 7 + n + 6$$

$$\boxed{4n - 1}$$

$$3(2(n-2)) + 2(n+5) \times$$

$$3(2n - 4) + 2n + 10$$

$$6n - 12 + 2n + 10$$

$$\boxed{8n - 2}$$

$$\frac{1}{2}(6n+4) - (1-n)^x$$

$$3n + 2 - 1 + n$$

$$\boxed{4n + 1}$$

$$(a+b)^2 - (a^2 + b^2)$$

$$(a+b)(a+b) - (a^2 + b^2)$$

$$a^2 + ab + ab + b^2$$

$$\cancel{a^2} + 2ab + \cancel{b^2} - \cancel{a^2} - \cancel{b^2}$$

$$\boxed{2ab}$$

$$(4+x)(2x-3)$$

$$8x - 12 + 2x^2 - 3x$$

$$\boxed{2x^2 + 5x - 12}$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$(a+b)^3 = (a^2 + 2ab + b^2)(a+b)$$

$$a^3 + a^2b + 2a^2b + 2ab^2 + ab^2 + b^3$$

$$\boxed{a^3 + 3a^2b + 3ab^2 + b^3}$$

$$\begin{array}{r} 2x + 5 = 13 \\ -5 \quad -5 \\ \hline \end{array}$$

$$\begin{array}{r} 2x = 8 \\ \hline 2 \quad 2 \end{array}$$

$$\boxed{x = 4}$$

$$180 \div \frac{5}{9}$$

$$\frac{180}{1} \cdot \frac{9}{5} = \frac{1620}{5} = 324$$

$$324 + 32 = \boxed{356}$$

$$\frac{16 - 12}{1.25} = \frac{4}{1.25} = \boxed{3.2}$$

$$\begin{array}{r} 1.25\text{€} + 12 = 16 \\ -12 \quad -12 \end{array}$$

$$\begin{array}{r} 1.25\text{€} = 4 \\ \hline 1.25 \quad 1.25 \\ \hline \text{€} = 3.2 \end{array}$$

3



$$13 = 5 - 2x$$

$$\begin{array}{r} -5 \\ \hline \end{array}$$

$$8 = -2x$$

$$\begin{array}{r} -2 \\ \hline \end{array}$$

$$\boxed{-4 = x}$$

$$10(10 - 3x) = -20$$

$$\begin{array}{r} 100 - 30x = -20 \\ -100 \quad -100 \\ \hline \end{array}$$

$$\begin{array}{r} -30x = -120 \\ -30 \quad -30 \\ \hline \end{array}$$

$$\boxed{x = 4}$$

$$\frac{-2(x-3) + 8}{5} = 6 \Rightarrow \frac{-2x + 6 + 8}{5} = 6$$

$$4x + 13(x+3) + 7(3x) = 115$$

$$4x + 13x + 39 + 21x = 115$$

$$\begin{array}{r} 38x + 39 = 115 \\ -39 \quad -39 \\ \hline \end{array}$$

$$\begin{array}{r} 38x = 76 \\ 38 \quad 38 \\ \hline \end{array} \quad \boxed{x = 2}$$

$$\frac{-2x + 14}{5} = 6$$

$$\begin{array}{r} 5 \cdot 5 \cdot 5 \\ \hline \end{array}$$

$$\begin{array}{r} -2x + 14 = 30 \\ -14 \quad -14 \\ \hline \end{array}$$

$$\begin{array}{r} -2x = 16 \\ -2 \quad -2 \\ \hline \end{array}$$

$$\boxed{x = -8}$$

$$\frac{10}{x} = 2 \cdot x$$

$$\frac{10}{2} = \frac{2x}{2}$$

$$5 = x$$

$$2x + 2 = x + 5$$

$$x + 2 = 5$$

$$x = 3$$

$$6(x-6) = 13x - 1$$

$$6x - 36 = 13x - 1$$

$$-36 = 7x - 1$$

$$-35 = 7x$$

$$-5 = x$$

$$36(v+4) = 72v$$

$$36v + 144 = 72v$$

$$144 = 36v$$

$$4 = v$$

$$v + 4 = 4 + 4 = 8$$

$$\frac{3x}{4} - 5 = \frac{x}{4} + 8 + 5$$

$$\frac{3x}{4} = \frac{x}{4} + 13$$

$$\frac{3x-x}{4} = 13$$

$$\frac{2x}{2} = 13 \cdot 4 \quad \frac{2x}{2} = \frac{52}{2}$$

$$x = 26$$

$$\begin{array}{r} 5x = 6x \\ -5x \quad -5x \\ \hline \end{array}$$

$$\boxed{0 = x}$$

$$x + 8 + x = 54$$

$$2x + 8 = 54$$

$$\begin{array}{r} -8 \quad -8 \\ \hline \end{array}$$

$$2x = 46$$

$$\begin{array}{r} \frac{2}{2} \\ \hline \end{array}$$

$$\boxed{x = 23}$$

$$p + 2p + 4p = 70$$

$$\begin{array}{r} 7p = 70 \\ \frac{7}{7} \quad \frac{7}{7} \\ \hline \end{array}$$

$$\boxed{p = 10}$$

\$10

& 8

$$\begin{array}{r} 10 + 86 = 11 + 86 \\ -86 \quad -86 \\ \hline \end{array}$$

$$10 = 11$$

$$0.5e = 36.4$$

$$\begin{array}{r} \frac{0.5}{0.5} \quad \frac{36.4}{0.5} \\ \hline \end{array}$$

$$\boxed{e = 72.8}$$

$$\begin{array}{r} \frac{6(x+4)}{6 \cdot 5} - \frac{x \cdot 5}{6 \cdot 5} = 7 \\ \hline \end{array}$$

$$\frac{6x + 24}{30} - \frac{5x}{30} = 7$$

$$\frac{6x + 24 - 5x}{30} = 7$$



$$\begin{array}{r} 1.8x + 8 = 6 + 2x \\ -1.8x \quad -1.8x \\ \hline \end{array}$$

$$\begin{array}{r} 8 = 6 + 0.2x \\ -6 \quad -6 \\ \hline \end{array}$$

$$\frac{2}{0.2} = \frac{0.2x}{0.2}$$

$$\boxed{x = 10}$$

$$\frac{x + 24}{\cancel{30} \cdot \cancel{30}} = 7 \cdot 30$$

$$\begin{array}{r} x + 24 = 210 \\ -24 \quad -24 \\ \hline \end{array}$$

$$x = 186$$

$$99/100$$

$$97/99$$

$$x + 7$$

$$\frac{2((x+7)-100) + 3 + x}{4} + 8$$

$$4$$

$$\frac{2((x-93) + 3 + x)}{4} + 8$$

$$4$$

$$\frac{2(2x - 90) + 8}{4}$$

$$4$$

$$\frac{4x - 180 + 8}{4} = x - 43$$

$$x - 43 = 0$$

$$x = 43$$