$x^2 - 10x + 25$ $a^2 = x^2 \Rightarrow a = x$, $b^2 = 25 \Rightarrow b = 5$ $\Rightarrow (x-5)^2$

$x^2 + 20x + 100$ $a^2 = x \Rightarrow a = x$, $b^2 = 100 \Rightarrow b = 10$ $\Rightarrow (x+10)^2$

$a^2 - 64$ $(a+8)\cdot(a-8)$ נוסחת כפל מקוצר

$49 + 14x + x^2$ $a^2 = 49 \Rightarrow a = 7$, $b^2 = x^2 \Rightarrow b = x$ $\Rightarrow (7+x)^2$

$4r^2 - 9$ $= (2r-3)\cdot(2r+3)$ נוסחת כפל מקוצר

$16x^2 + 40x + 25$ $a^2 = 16x^2 \Rightarrow a = 4x$, $b^2 = 25 \Rightarrow b = 5$ $(4x+5)^2$

$m^2 + 2mn + n^2$ $= (m+n)^2$ נוסחת כפל מקוצר (סכום בריבוע)

$36 - 24x + 4x^2$ $a^2 = 36 \Rightarrow a = 6$, $b^2 = 4x^2 \Rightarrow b = 2x$ $(6-2x)^2$

$16x^2 - 9y^2$ $(4x+3y)\cdot(4x-3y)$ נוסחת כפל מקוצר

$25x^2 - 30xy + 9y^2$ $a^2 = 25x^2 \Rightarrow a = 5x$, $b^2 = 9y^2 \Rightarrow b = 3y$ $(5x-3y)^2$

$x^2 - 4y^2$ $(x+2y)\cdot(x-2y)$ נוסחת כפל מקוצר

$9n^2 + 24mn + 16m^2$ $a^2 = 9n^2 \Rightarrow a = 3n$, $b^2 = 16m^2 \Rightarrow b = 4m$ $(3n+4m)^2$

$2x^2 + 11x + 5$

$a = 2$, $b = 11$, $c = 5$

$a \cdot c = 10$

$a + c = 11$

1, 10 את מוצא מ

$2x^2 + 10x + x + 5 = 2x(x+5) + x + 5 = (x+5)(2x+1)$

$4x^2 + 17x + 15$

$a = 4$, $b = 17$ $c = 15$

$a \cdot c = 60$

$a + c = 17$

12, 5 את מוצא

$4x^2 + 12x + 5x + 15 = 4x(x+3) + 5(x+3) = (x+3)(4x+5)$

$$\frac{5y-2xy}{15-6x} = \frac{y(5-2x)}{3(5-2x)} = \frac{y}{3}$$

$$\frac{2xy^2+4xy}{5x^2y+10xy} = \frac{2xy(y+2)}{5xy(x+2)} = \frac{2y+4}{5x+10}$$

$$\frac{x^2+8x}{x+8} = \frac{x(x+8)}{x+8} = x$$

$$\frac{a^2-7a}{a-7} = \frac{a(a-7)}{a-7} = a$$

$$\frac{a-2}{3a^4-6a^3} = \frac{a-2}{3a^3(a-2)} = \frac{1}{3a^3}$$

$$\frac{x^2-49}{x-7} = \frac{(x-7)(x+7)}{(x-7)} = x+7$$

$$\frac{ax^3-5x^3}{3ab^2-15b^2} = \frac{x^3(a-5)}{3b^2(a-5)} = \frac{x^3}{3b^2}$$

$$\frac{x^2-5x}{5-x} = \frac{x(x-5)}{-1(x-5)} = -x$$

$$\frac{10ab-ab^2}{b-10} = \frac{ab(10-b)}{-1(10-b)} = -ab$$

$$\frac{64-48m+9m^2}{(8-3m)^2} = \frac{(8-3m)^2}{(8-3m)^2} = 1$$

$$\frac{2ab-5b}{20-8a} = \frac{b(2a-5)}{-4(2a-5)} = \frac{b}{-4}$$

$$\frac{x^2-10x+25}{x-5} = \frac{(x-5)^2}{x-5} = x-5$$

$3^9 \cdot 3^3 = 3^{9+3} = 3^{12}$

$3^x \cdot 3^{4x} = 3^{x+4x} = 3^{5x}$

$\frac{7^{13}}{7^6} = 7^{13-6} = 7^7$

$\frac{8^x}{8^{x-6}} = 8^{x-(x-6)} = 8^6$

$2^x \cdot 2^{6-x} = 2^{x+(6-x)} = 2^6$

$\frac{7^x}{7^3} = 7^{x-3}$

$\frac{5^{3x}}{5^x \cdot 5^6} = \frac{5^{3x}}{5^{x+6}} = 5^{3x-(x+6)} = 5^{2x-6}$

$\frac{12^{13}}{12^3} = 12^{13-3} = 12^{10}$

$4^{3x} \cdot 4^{13-3x} = 4^{3x+(13-3x)} = 4^{13}$

$\frac{13^{2x} \cdot 13^6}{13^x \cdot 13^3} = \frac{13^{2x+6}}{13^{x+3}} = 13^{2x+6-(x+3)} = 13^{x+3}$

$(5x)^2 = 5^2 \cdot x^2 = 25x^2$

$(x^2)^6 = x^{2\cdot 6} = x^{12}$

$\left(\frac{1}{4}\right)^3 = \frac{1^3}{4^3} = \frac{1}{64}$

$\frac{(x+5)^4}{x+5} = \frac{(x+5)^4}{(x+5)^1} = (x+5)^{4-1} = (x+5)^3$

$\left(\frac{3x}{7}\right)^2 = \frac{3^2 x^2}{7^2} = \frac{9x^2}{49}$

$(5x^2y)^2 \quad 5^2 \cdot x^{2\cdot 2} \cdot y^2 = 25x^4y^2$

$\left(\frac{x^5}{y}\right)^2 = \frac{x^{5\cdot 2}}{y^2} = \frac{x^{10}}{y^2}$

$(x^x)^x = x^{x\cdot x} = x^{x^2}$

$(4x^x)^y = 4^y \cdot x^{x\cdot y} = 4^y \cdot x^{xy}$

$\left(\frac{2}{x^5}\right)^3 \cdot \left(\frac{x^4}{2}\right)^4 \quad \frac{2^3}{x^{5\cdot 3}} \cdot \frac{x^{4\cdot 4}}{2^4} = \frac{2^3}{2^4} \cdot \frac{x^{16}}{x^{15}} = 2^{3-4} \cdot x^{16-15}$

$= 2^{-1} \cdot x = \frac{x}{2}$

$$\sqrt[4]{\frac{x^8}{y^{12}}} = \frac{\sqrt[4]{x^8}}{\sqrt[4]{y^{12}}} = \frac{x^{\frac{8}{4}}}{y^{\frac{12}{4}}} = \frac{x^2}{y^3}$$

$$\sqrt{\frac{25}{36}} = \frac{\sqrt{25}}{\sqrt{36}} = \frac{5}{6}$$

$$\frac{\sqrt{200}}{10} = \frac{\sqrt{100 \cdot 2}}{10} = \frac{\sqrt{100} \cdot \sqrt{2}}{10} = \frac{10 \cdot \sqrt{2}}{10} = \sqrt{2}$$

$$\frac{\sqrt[3]{16}}{2} = \frac{\sqrt[3]{2^4}}{2} = \frac{2^{\frac{4}{3}}}{2} = 2^{\frac{4}{3}-1} = 2^{\frac{1}{3}} = \sqrt[3]{2}$$

$$\frac{\sqrt[3]{2000}}{\sqrt[3]{2}} = \frac{\sqrt[3]{1000 \cdot 2}}{\sqrt[3]{2}} = \frac{\sqrt[3]{1000} \cdot \sqrt[3]{2}}{\sqrt[3]{2}} = 10$$

$$\frac{\sqrt[3]{500}}{\sqrt[3]{4}} = \frac{\sqrt[3]{125 \cdot 4}}{\sqrt[3]{4}} = \frac{\sqrt[3]{125} \cdot \sqrt[3]{4}}{\sqrt[3]{4}} = \sqrt[3]{125} = 5$$

$$\frac{\sqrt{98}}{\sqrt{2}} = \frac{\sqrt{49 \cdot 2}}{\sqrt{2}} = \frac{\sqrt{49} \cdot \sqrt{2}}{\sqrt{2}} = \sqrt{49} = 7$$

$$\sqrt{12} \cdot \sqrt{3} = \sqrt{12 \cdot 3} = \sqrt{36} = 6$$

$$\frac{\sqrt{500}}{\sqrt{5}} = \sqrt{\frac{500}{5}} = \sqrt{100} = 10$$

$$\sqrt{5} \cdot \sqrt{3} \cdot \sqrt{15} = \sqrt{5 \cdot 3} \cdot \sqrt{15} = \sqrt{15} \cdot \sqrt{15} = 15$$

$$\frac{\sqrt{6} \cdot \sqrt{2}}{\sqrt{3}} = \frac{\sqrt{3 \cdot 2} \cdot \sqrt{2}}{\sqrt{3}} = \frac{\sqrt{3} \cdot \sqrt{2} \cdot \sqrt{2}}{\sqrt{3}} = \sqrt{2} \cdot \sqrt{2} = 2$$

$$\begin{cases} \frac{3y}{5}+\frac{x}{3}=4 \\ 3y-x=-4 \end{cases} = \begin{cases} 9y+5x=60 \\ 3y-x=-4 \end{cases} \xrightarrow{\cdot 5} = \begin{cases} 9y+5x=60 \\ 15y-5x=-20 \end{cases} \quad (+)$$

$24y = 40 \rightarrow y = \frac{5}{3}$

$3\cdot(\frac{5}{3}) - x = -4 \rightarrow x = 9$

$y = \frac{5}{3}$, $x = 9$

$$\begin{cases} \frac{y}{6}+\frac{x}{3}=2 \\ 5x-y=-19 \end{cases} = \begin{cases} y+2x=12 \\ 5x-y=-19 \end{cases} \quad (+) \rightarrow 7x = -7$$

$x = -1$

$5\cdot(-1) - y = -19 \rightarrow y = 14$

$x = -1$, $y = 14$

$$\begin{cases} \frac{x}{8}+\frac{y}{2}=1 \\ \frac{2x}{3}-\frac{y}{6}=-\frac{1}{3} \end{cases} = \begin{cases} x+4y=8 \\ 4x-y=-2 \end{cases} \xrightarrow{\cdot 4} = \begin{cases} 4x+16y=32 \\ 4x-y=-2 \end{cases} \quad (-)$$

$17y = 34 \rightarrow y = 2$

$\frac{x}{8} + \frac{2}{2} = 1 \rightarrow x = 0$

$y = 2$, $x = 0$

$$\begin{cases} 0.3x-0.9y=0 \\ 0.7x-0.5y=-3.2 \end{cases} \rightarrow 0.3x = 0.9y \xrightarrow{:0.3} x = 3y$$

נציב במשוואה השנייה:

$0.7\cdot 3y - 0.5y = -3.2$

$1.6y = -3.2 \Rightarrow y = -2$, $x = 3\cdot(-2) = -6$

$y = -2$, $x = -6$