

1.9. Oblicz x , jeśli:

a) $x = \frac{\sqrt{48} - \sqrt{32}}{(\sqrt[4]{3} + \sqrt[4]{2})(\sqrt[4]{3} - \sqrt[4]{2})}$

b) $4^{-0,25} - 2^{0,5} = \frac{x}{4^{-0,25} + (2\sqrt{2})^{\frac{1}{3}}}$

c) $\frac{\sqrt[3]{25} \cdot 5^{-\frac{1}{2}}}{(\sqrt[6]{25})^2 \cdot \sqrt{5} \cdot x} = \left(\frac{1}{5}\right)^2 \cdot \left(\frac{1}{\sqrt[4]{25}}\right)^2$

d) $\frac{x+5,5}{14}(4+\sqrt{2}) = \frac{(\sqrt{6}-\sqrt{5})(\sqrt{6}+\sqrt{5})}{8^{\frac{2}{3}} - 2^{\frac{1}{2}}}$

$$4^{-\frac{1}{4}} - 2^{\frac{1}{2}} = \frac{x}{4^{-\frac{1}{4}} + 2^{\frac{1}{2}}} \quad | \cdot 11 \times 0$$

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

$$x = (4^{-\frac{1}{4}})^2 - (2^{\frac{1}{2}})^2 = 4^{-\frac{1}{2}} - 2 = \frac{1}{\sqrt{4}} - 2 = \frac{1}{2} - 2 = -\frac{3}{2}$$

c) $\frac{\sqrt[3]{25} \cdot 5^{-\frac{1}{2}}}{(\sqrt[6]{25})^2 \cdot \sqrt{5} \cdot x} = \left(\frac{1}{5}\right)^2 \cdot \left(\frac{1}{\sqrt[4]{25}}\right)^2$

(10)

$$d) (\sqrt{2}-1)x = \frac{x^2 - (0,25)^{-1}x + 8^{\frac{2}{3}}}{(\sqrt{2}+1)x^2} \quad | \cdot 1$$

$$(\sqrt{2}-1)(\sqrt{2}+1)x^3 = x^2 - 4x + 4$$

$$\underline{x^3 - x^2 + 4x - 4 = 0} \quad R. U \in L$$

$$x^2(x-1) + 4(x-1) = 0$$

$$(x^2+4)(x-1) = 0$$

$$\emptyset \quad \underline{x=1} \quad \text{dla } \underline{x=1}$$

$$(0,25)^{-1} = \left(\frac{1}{4}\right)^{-1} = 4$$

$$4 = 8^{\frac{2}{3}} = (2^3)^{\frac{2}{3}} = 2^{2} = 4$$

$$d) \frac{x+5,5}{14} (4+\sqrt{2}) = \frac{(\sqrt{6}-\sqrt{5})(\sqrt{6}+\sqrt{5})}{\underbrace{8^{\frac{2}{3}} - 2^{\frac{1}{2}}}_{4-\sqrt{2}}}$$

$$8^{\frac{2}{3}} = (2^3)^{\frac{2}{3}} = 2^2 = 4$$

$$| \cdot (4-\sqrt{2})$$

$$\frac{x+5,5}{14} (4+\sqrt{2})(4-\sqrt{2}) = 6-5 = 1$$

$$x+5,5 = 1$$

$$\underline{x = -4,5}$$

c)
$$\frac{\left(6-11^{\frac{1}{2}}\right)\left(6+11^{\frac{1}{2}}\right)}{\left(\sqrt{6-\sqrt{11}}-\sqrt{6+\sqrt{11}}\right)^2}$$

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

$36-11$

$6-\sqrt{11} - 2 \cdot \sqrt{(6-\sqrt{11})(6+\sqrt{11})} + 6+\sqrt{11}$

a^2

$12 - 2 \cdot \sqrt{36-11}$

$\frac{12}{12-10} = \frac{12}{2} = 6$

$\sqrt{a^2} = |a|$

$\sqrt{(-4)^2} = |-4| = 4$

$a \geq 0$
 $\sqrt{a^2} = a$

$\sqrt{a^2} = |a| \quad a \in \mathbb{R}$
 $\sqrt{a^2} = a \quad a \geq 0$

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

$f(x) = g(x)$

$x \in \mathbb{R}$

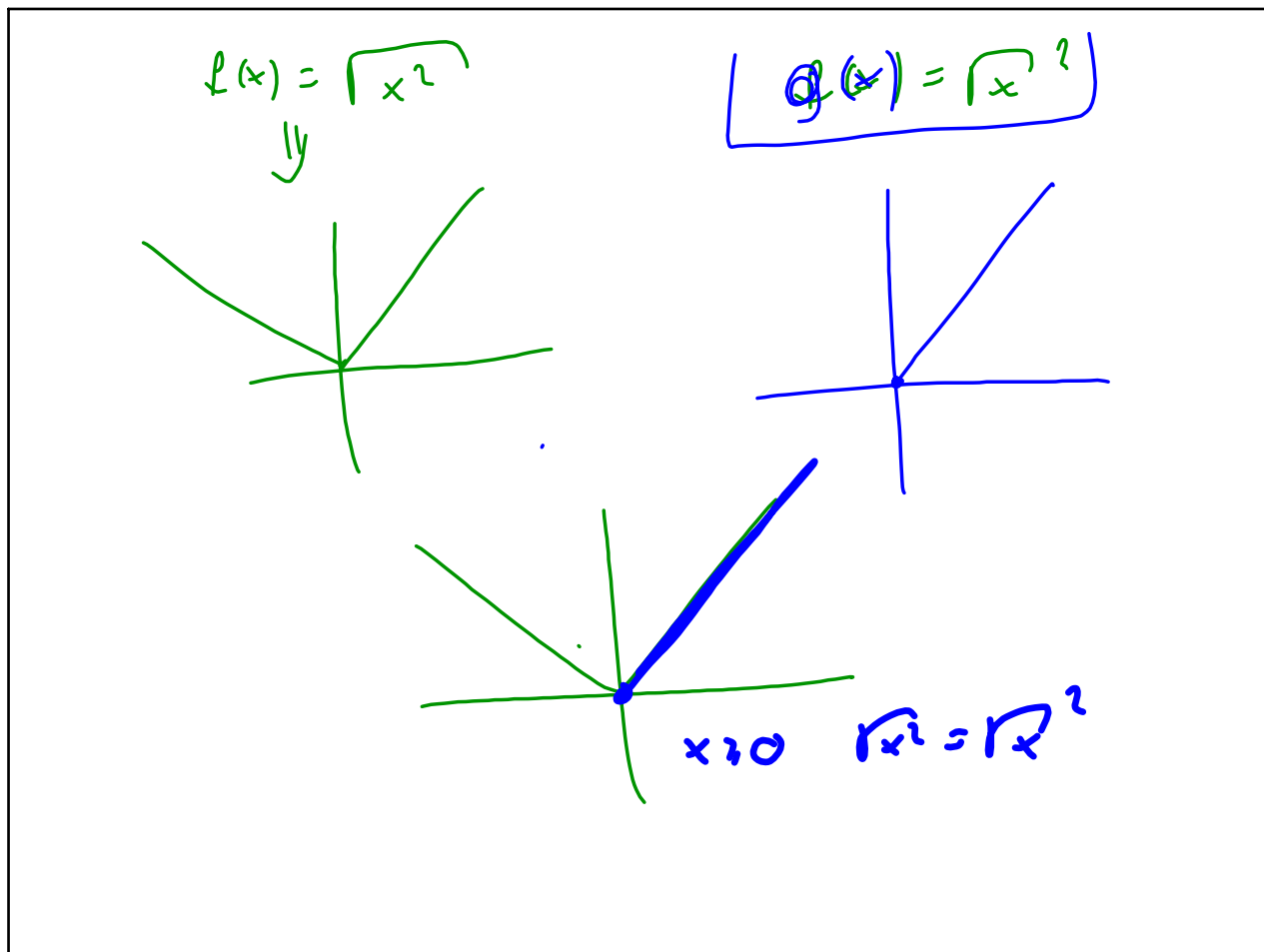
$\textcircled{1}: x \neq 1$

$g(x) = x+1$

$\frac{(x-1)(x+1)}{(x-1)}$

$\textcircled{2}: x \neq 1$

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



$-\sqrt{a} \neq \sqrt{-a}$

$\underline{-0=0}$

w.r. $\sqrt{-a}$ $\begin{matrix} a \leq 0 \\ a = -4 \end{matrix}$
 $\sqrt{-(-4)}$

$$d) \left[(3-\sqrt{5})^{\frac{1}{2}} + (3+\sqrt{5})^{\frac{1}{2}} \right]^{-2} \cdot \left[\left(\frac{27}{8} \right)^{\frac{1}{3}} - 28^0 \right] =$$

$$\left(\frac{3^3}{2^3} \right)^{\frac{1}{3}} - 1$$

$$\frac{3}{2} - 1$$

$$\left[\underbrace{(3-\sqrt{5})^{\frac{1}{2}}}_{(a)} + \underbrace{(3+\sqrt{5})^{\frac{1}{2}}}_{(b)} \right]^2$$

$$= \frac{\underbrace{3-\sqrt{5}}_{a^2} + \underbrace{3+\sqrt{5}}_{b^2} + 2 \underbrace{\left(\underbrace{3-\sqrt{5}}_{a} \cdot \underbrace{3+\sqrt{5}}_{b} \right)}_{11}}{\left(\right)^{\frac{1}{2}}}$$

$$a^2 = \left((3-\sqrt{5})^{\frac{1}{2}} \right)^2 = 3-\sqrt{5}$$

$$(\sqrt{3-\sqrt{5}})^2 = 3-\sqrt{5}$$

$$\frac{\frac{1}{2}}{6+4} = \frac{1}{20}$$