

$$2^x = 64 \cdot 2^{2x-4} \quad .5$$

$$2^x = 2^6 \cdot 2^{2x-4}$$

$$2^x = 2^{2x-4+6}$$

$$2^x = 2^{2x+2}$$

$$x = 2x + 2$$

$$-2 = x$$

אנחנו רוצים להשוות את המעצמות /  
אנחנו רוצים להשוות את המעצמות.

$$121^{x+1} = 11^8 \quad .7$$

$$(11^2)^{x+1} = 11^8$$

$$11^{2x+2} = 11^8$$

$$2x+2 = 8$$

$$2x = 6$$

$$x = 3$$

$$5^{3x-5} = \frac{1}{125} \quad .11$$

$$5^{3x-5} = \frac{1}{5^3}$$

$$5^{3x-5} = 5^{-3}$$

$$3x-5 = -3$$

$$3x = 2$$

$$x = \frac{2}{3}$$

$$\left(\frac{1}{2}\right)^{2x} = 512 \quad .13$$

$$\left(2^{-1}\right)^{2x} = 2^9$$

$$2^{-2x} = 2^9$$

$$-2x = 9$$

$$x = -4.5$$

$$\sqrt{4^x} = \frac{1}{1024} \quad .19$$

$$4^{\frac{x}{2}} = 1024^{-1}$$

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

$$2^x = 2^{-10}$$

$$x = -10$$

7 ✓

$$(3 \cdot 5)^{2x} = (9^x) \cdot 625 \quad .26$$

$$3^{2x} \cdot 5^{2x} = (3^2)^x \cdot 5^4$$

$$\cancel{3^{2x}} \cdot 5^{2x} = \cancel{3^{2x}} \cdot 5^4$$

$$5^{2x} = 5^4$$

$$2x = 4$$

$$x = 2$$

$$6^x + 6^x = 72 \quad .29$$

$$2 \cdot 6^x = 72$$

$$6^x = 36$$

$$6^x = 6^2$$

$$x = 2$$

$$9^x + 3^x = 6642 \quad .31$$

$$3^{2x} + 3^x = 6642$$

$$(3^x)^2 + 3^x - 6642 = 0$$

$$3^x = t$$

$$t^2 + t - 6642 = 0$$

$$t_1 = 81$$

$$3^x = 81$$

$$3^x = 3^4$$

$$x = 4$$

$$t_2 = -82$$

$$t = 3^x > 0$$

$$2^{3x-2} < 2^{4x-1} \quad .1$$

$$3x-2 < 4x-1$$

$$-1 < x$$

$$\left(\frac{1}{64}\right)^{3x+1} < 4^{x+3} \quad .4$$

$$(64^{-1})^{3x+1} < 4^{x+3}$$

$$\left((4^3)^{-1}\right)^{3x+1} < 4^{x+3}$$

$$4^{-9x-3} < 4^{x+3}$$

$$-9x-3 < x+3$$

$$-6 < 10x$$

$$-\frac{3}{5} < x$$

$$7^{3x-4} > 1 \quad .6$$

$$7^{3x-4} > 7^0$$

$$3x-4 > 0$$

$$3x > 4$$

$$x > \frac{4}{3}$$

$$7^{-x+2} > 0 \quad .8$$

$x \in \mathbb{R}$  . אפשר ת'אמר "כל המספרים חזקה".

$$4^{x^2-5x} \geq \frac{1}{256} \quad .10$$

$$4^{x^2-5x} \geq 256^{-1}$$

$$4^{x^2-5x} \geq (4^4)^{-1}$$

$$4^{x^2-5x} \geq 4^{-4}$$

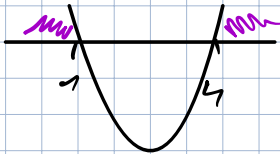
$$x^2-5x \geq -4$$

$$x^2 - 5x + 4 \geq 0$$

∴ 250.5

$$x^2 - 5x + 4 = 0$$

$$x = 1 \quad x = 4$$



$$x < 1 \quad \vee \quad x \geq 4$$

$$3^{-x^2} > 9^{-x-1.5} \quad .12$$

$$3^{-x^2} > (3^2)^{-x-1.5}$$

$$3^{-x^2} > 3^{-2x-3}$$

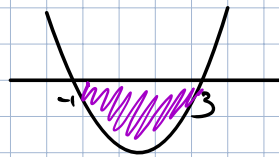
$$-x^2 > -2x - 3$$

$$0 > x^2 - 2x - 3$$

∴ 250.5

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

$$x_1 = 3 \quad x_2 = -1$$



$$-1 < x < 3$$