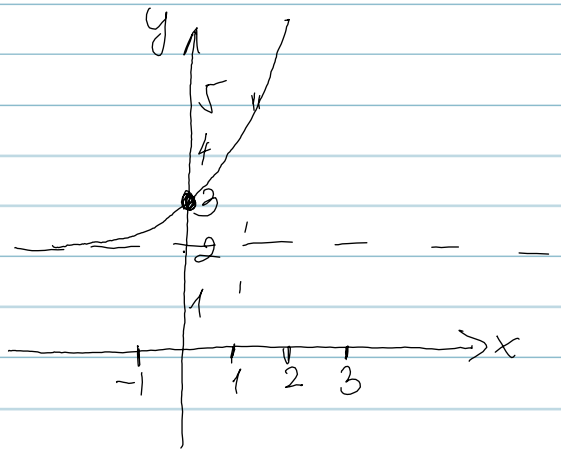
FIND THE FUNCTION THAT MATCH WITH THE GRAPH



V.S 2 units up HA: $y=2$

$x=0 \quad y=1+2=3 \qquad a^0+2=3$

$x=1 \quad y=5 \qquad a^1+2=5$

$a+2=5$

$a=3$

$$\boxed{y=3^x+2}$$

SOLVE THE EQUATIONS:

$$5^{x^2+8}=125^{-2x}$$

$$5^{x^2+8}=(5^3)^{-2x}$$

$$5^{x^2+8}=5^{-6x} \Rightarrow$$

$$x^2+8=-6x$$

$$x^2+6x+8=0$$

$$(x+4)(x+2)=0$$

$$x=-4 \quad x=-2$$

$$9^{2x}\cdot 27^{x^2}=3^{-1}$$

$$(3^2)^{2x}\cdot(3^3)^{x^2}=3^{-1}$$

$$3^{4x}\cdot 3^{3x^2}=3^{-1}$$

$$3^{4x+3x^2}=3^{-1} \Rightarrow$$

$$4x+3x^2=-1$$

$$3x^2+4x+1=0$$

$$x=\frac{-4\pm\sqrt{16-12}}{6}=\frac{-4\pm 2}{6}$$

$$\frac{-2}{6}=-\frac{1}{3} \qquad \frac{-6}{6}=-1$$