

$$\textcircled{A} \quad 8^x = 2^{2x-5}$$

get BASES SAME IF you are going to use Rules of Exponents

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

$$2^{3x} = 2^{2x-5}$$

$$3x = 2x - 5$$

$$x = -5$$

\textcircled{B}

$$3^x = \frac{1}{27}$$

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

$$x = -3$$

\textcircled{C}

$$9^{x-1} = 27^{x+4}$$

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

$$3^{2x-2} = 3^{3x+12}$$

$$2x-2 = 3x+12$$

$$-14 = x$$

\textcircled{D}

$$\left(\frac{1}{4}\right)^{3x} = 8^{x+5}$$

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

$$2^{-6x} = 2^{3x+15}$$

$$-6x = 3x+15$$

$$-9x = 15$$

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

\textcircled{E}

$$49^{x-2} = 7\sqrt{7}$$

$$(7^2)^{x-2} = 7^{3/2}$$

$$7^{2x-4} = 7^{3/2}$$

$$2x-4 = 3/2$$

$$2x = 11/2$$

$$x = 11/4$$

\textcircled{F}

$$4^{2x+5} = 16^{x+1}$$

$$(2^2)^{2x+5} = (2^4)^{x+1}$$

$$2^{4x+10} = 2^{4x+4}$$

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* challenge *

$$(3^x)^2 - 6(3^x) + 9 = 0$$

$$3^{2x} - 6 \cdot 3^x + 9 = 0$$

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

$$3^x - 3 = 0$$

$$3^x = 3$$

$$x = 1$$

Wpamup

Solve

1) $-2(x-7)^4 = -162$

$(x-7)^4 = 81$

$x-7 = \sqrt[4]{81}$

$x-7 = \pm 3 \quad x = 7 \pm 3 \quad x = 10, 4$

2) $\frac{1}{5}(7x-2)^3 = -25$

$(7x-2)^3 = -125$

$7x-2 = \sqrt[3]{-125}$

$7x-2 = -5$

$7x = -3$

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

3) $\frac{y^{2x-3}}{y^{x+1}} = y^6$

$y = ?$

$y^{2x-3-(x+1)} = y^6$

$y^{2x-3-x-1} = y^6$

$y^{x-4} = y^6 \quad x-4 = 6 \quad x = 10$

4) $\frac{4x^{-2}}{16x^{-4}} = 16$

$\frac{1}{4} \frac{x^4}{x^2} = 16$

$\frac{1}{4} x^2 = 16$

$x^2 = 64$

$x = \pm 8$