

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

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

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

$$2x = -2$$

$$\boxed{x = -1}$$

$$6. \quad 625^{-n-2} = \frac{1}{125}$$

$$5^{4(-n-2)} = \frac{1}{5^3}$$

$$5^{4(-n-2)} = 5^{-3}$$

$$4(-n-2) = -3$$

$$-4n - 8 = -3$$

$$-4n = 5$$

$$\boxed{n = -5/4}$$

$$10. \quad 5^{2n} = 5^{-n}$$

$$2n = -n$$

$$3n = 0$$

$$n = 0/3$$

$$\boxed{n = 0}$$

$$4. \quad 16^{-3p} = 64^{-3p}$$

$$2^{4(-3p)} = 2^{6(-3p)}$$

$$-12p = -18p$$

$$+18p \quad +18p$$

$$6p = 0$$

$$\boxed{p = 0}$$

$$8. \quad 6^{2r-3} = 6^{r-3}$$

$$2r-3 = r-3$$

$$\boxed{r = 0}$$

$$12. \quad 216^{-3v} = 36^{3v}$$

$$6^{3(-3v)} = 6^{2(3v)}$$

$$-9v = 6v$$

$$-6v \quad -6v$$

$$-15v = 0$$

$$\frac{-15}{-15} \quad \frac{0}{-15}$$

$$\boxed{v = 0}$$

$$14. \quad 27^{-2n-1} = 9$$

$$3^{3(-2n-1)} = 3^2$$

$$3(-2n-1) = 2$$

$$-6n - 3 = 2$$

$$-6n = 5$$

$$n = -5/6$$

$$16. \quad 4^{-3v} = 64$$

$$4^{-3v} = 4^3$$

$$-3v = 3$$

$$v = -1$$

$$18. \quad 64^{x+2} = 16$$

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

$$3(x+2) = 2$$

$$3x + 6 = 2$$

$$3x = -4$$

$$x = -4/3$$

$$20. \quad 16^{2k} = \frac{1}{64}$$

$$4^{2(2k)} = 4^{-3}$$

$$2(2k) = -3$$

$$4k = -3$$

$$k = -3/4$$

$$22. \quad 243^p = 27^{-3p}$$

$$3^{5p} = 3^{3(-3p)}$$

$$5p = 3(-3p)$$

$$5p = -9p$$

$$14p = 0$$

$$14p = 0$$

$$p = 0$$

$$24. \quad 4^{2n} = 4^{2-3n}$$

$$2n = 2 - 3n$$

$$+3n \quad +3n$$

$$5n = 2$$

$$n = 2/5$$

