

4.3: Solve Exponential Equations

Steps:

- 1) Get exponent by itself
- 2) convert to log form
- 3) solve for variable.

Ex 1) Solve $3^x = 7$

$$\log_3 7 = x$$
$$\boxed{x = 1.77}$$

Ex 2) Solve: $20.1 = 2.8^x + 1$

$$19.1 = 2.8^x$$
$$\log_{2.8} 19.1 = x$$
$$\boxed{x = 2.86}$$

Ex 3) Solve: $2(4)^{9x-7} = 37$

$$4^{9x-7} = 18.5$$
$$\log_4 18.5 = 9x - 7$$
$$2.1 \div = 9x - 7$$
$$9.1 \div = 9x$$
$$\boxed{x = 1.01}$$

Ex 4) Solve: $6 \cdot 5^{3x} - 1 = 53$

$$6 \cdot 5^{3x} = 54$$
$$5^{3x} = 9$$
$$\log_5 9 = 3x$$
$$1.3 \div = 3x$$
$$\boxed{x = 0.46}$$