

Solve.

1. $5^{x-2} * 5^{3x-7} = 125$

2. $\frac{9^{x-8}}{27^{-2}} = 81^{-6x+4}$

Solving using logarithms

METHOD 1

Example 1: **Solve $2^x = 10$**

Method 1 Steps:

1. Using the property of equality, take the log of both sides.
2. Use the properties of logs to move the x out of the exponent.
3. Divide both sides by log.
4. Isolate the variable by using basic solving skills.
5. Simplify by using your calculator.

Example 2: **Solve $8^{x+6} = 11$**

Now you TRY!

1. $3^x = 11$

2. $3^{x+2} = 15$

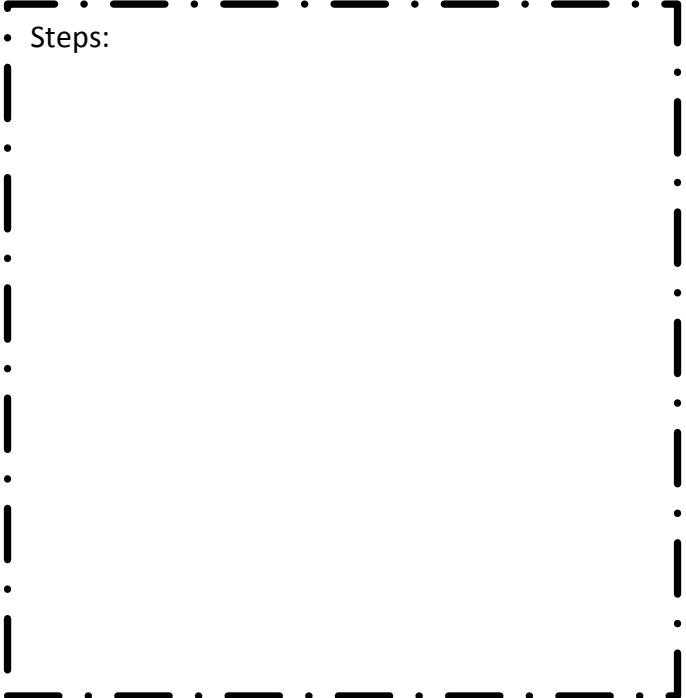
3. $3^{2x} = 20$

What happens if you have a variable on both sides?!

Solve.

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

• Steps:



Practice: Solve using any method.

1. $4^x = 53$

2. $15 = 22^x$

3. $3^{7x} = 11$

$$4. 8^{x-4} = 9$$

$$5. 41 = 12^{4x+3}$$

$$6. 20^{x^2} = 70$$

$$7. 2.1^{5x} = 9.32$$

$$8. 6^{x+5} = 2^x$$

$$9. 7^{2x-1} = 5^{x+1}$$

$$10. 80 = 7^x$$

$$11. 4.4^x = 8.8$$

$$12. 9 = 10^{-2x}$$

$$13. 2^{3x-5} = 17$$

$$14. 52 = 4^{-x+5}$$

$$15. 13 = 8^{4x^2}$$

$$16. 7^x = 3^{x+9}$$

$$17. 2^{4x-1} = 9^x$$

$$18. 15^{4x-3} = 23^{9x+1}$$