

## practice

$$1. \log_2 x + \log_2 (x-2) = 3$$

step 1: condense

$$\log_2 (x(x-2)) = 3$$

step 2: make into exponential

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

step 3:  
solve

$$8 = x^2 - 2x$$

$$0 = x^2 - 2x - 8$$

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

$$\boxed{x=4, x=-2}$$

$$2. \log x + \log 4 = \log 15$$

$$\log x + \log 4 - \log 15 = 0$$

$$\log \left( \frac{4x}{15} \right) = 0$$

$$10^0 = \frac{4x}{15}$$

$$1 = \frac{4x}{15}$$

$$15 = 4x$$

$$\boxed{15/4 = x}$$

\* review ~~what~~ exact answer  
versus approximate answer \*

## Topics

expand

condense

solve for  $x$  with logs

solve for  $x$  with exp.

evaluate/simplify.

step 1: move everything  
w/ log to 1 side

step 2: rearrange & solve