

TEKS a.5, a.6, 2A.11.D, 2A.11.F



Another Way to Solve Examples 2 and 7, pp. 516 and 519

MULTIPLE REPRESENTATIONS In Examples 2 and 7 on pages 516 and 519, respectively, you solved exponential and logarithmic equations algebraically. You can also solve such equations using tables and graphs.

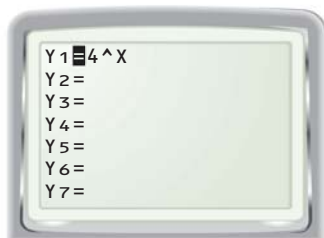
PROBLEM 1

Solve the following exponential equation: $4^x = 11$.

METHOD 1

Using a Table One way to solve the equation is to make a table of values.

STEP 1 Enter the function $y = 4^x$ into a graphing calculator.



STEP 2 Create a table of values for the function.

X	Y1
1.5	8
1.6	9.1896
1.7	10.5556
1.8	12.126
1.9	13.929

X=1.7

STEP 3 Scroll through the table to find when $y = 11$. The table in Step 2 shows that $y = 11$ between $x = 1.7$ and $x = 1.8$.

► The solution of $4^x = 11$ is between 1.7 and 1.8.

METHOD 2

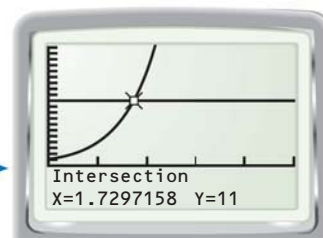
Using a Graph You can also use a graph to solve the equation.

STEP 1 Enter the functions $y = 4^x$ and $y = 11$ into a graphing calculator.



STEP 2 Graph the functions. Use the *intersect* feature to find the intersection point of the graphs. The graphs intersect at about (1.73, 11).

Use a viewing window of $0 \leq x \leq 5$ and $0 \leq y \leq 20$.



► The solution of $4^x = 11$ is about 1.73.