

5-Minute Check

Transparency 10-6

(over Lesson 10-5)

SE-18 WEDNESDAY 3-26-08

- Graph $y = 4^x$. State the y-intercept. Then use the graph to determine the approximate value of $4^{0.6}$. Use a calculator to confirm the value.

Determine whether the data in each table display exponential behavior. Explain why or why not.

2.

	1	2	3	4
	0.5	1.5	2.5	3.5

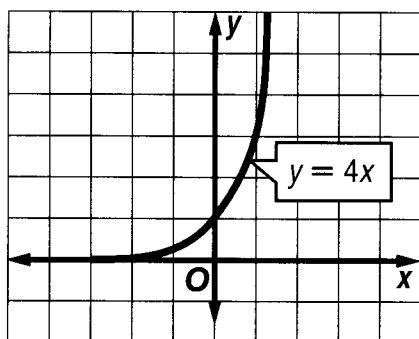
3.

	2	4	6	8
	4	16	64	256

- A tournament begins with 64 teams. After each round, only $\frac{1}{2}$ of the teams remain. Write an exponential function for the number of teams remaining after x rounds of play. How many teams remain after 3 rounds?
- Standardized Test Practice** What is the y-intercept of the graph of $y = 2^x - 5$?

ANSWERS

- y-intercept: 1; 2; 2.3



- No, the domain values are at regular intervals and the range values have a common difference.
- Yes, the domain values are at regular intervals and the range values have a common ratio of 4.
- $y = 64\left(\frac{1}{2}\right)^x$; 8 teams
- 4

Problem #4 of Bell Exercise

The Exponential function $y = a^x$ can be better expressed as $y = C(a^x)$ where C will be the "starting value" for many real world problems since when $x = 0$, $y = C(a^0) = C(1) = C$

EX) 64 team NCAA tournament,
of form $y = (\frac{1}{2})^x$ but $C = 64$

so $y = 64(\frac{1}{2})^x$ $x \Rightarrow$ ROUNDS, $0 =$ START
 $y \Rightarrow$ teams left

After 3 rounds $y = 64(\frac{1}{2})^3$

$$y = 64(\frac{1}{8})$$

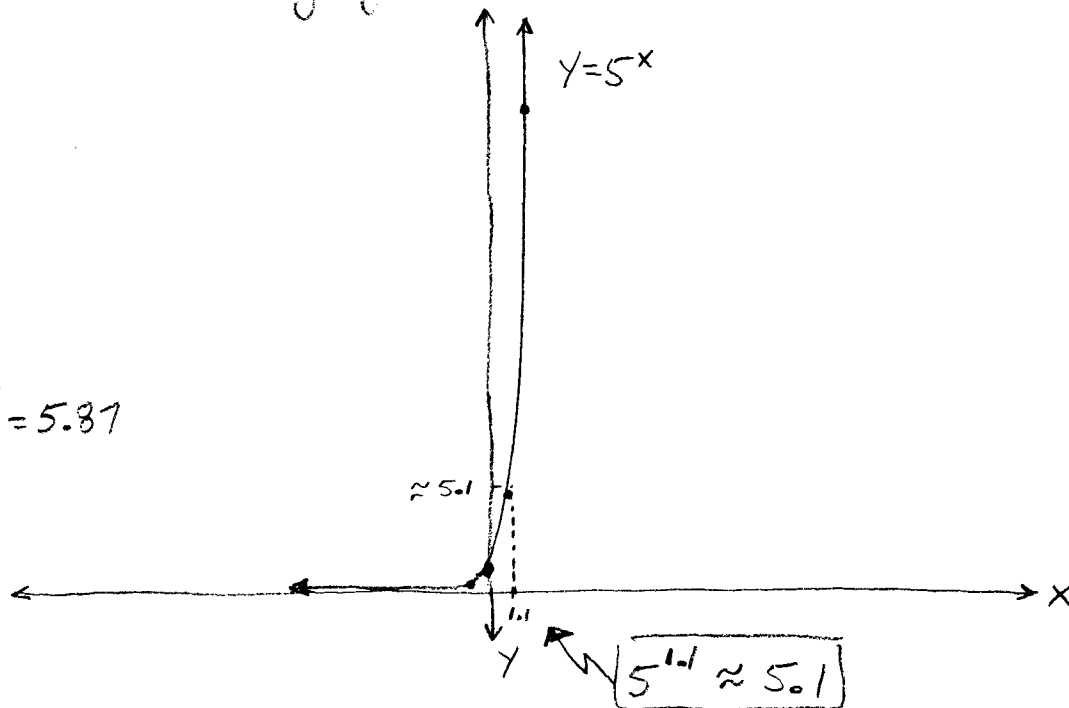
$y = 8$ teams left.

- Homework Review
- Graphing Tools $\Rightarrow$
- Graph Paper
- French Curves
- Flexible Curves

13) GRAPH $y = 5^x$ Use graph to estimate $5^{1.1}$

X	Y
-2	$\frac{1}{25}$
-1	$\frac{1}{5}$
0	1
1	5
2	25

CALCULATOR $\Rightarrow 5^{1.1} = 5.87$

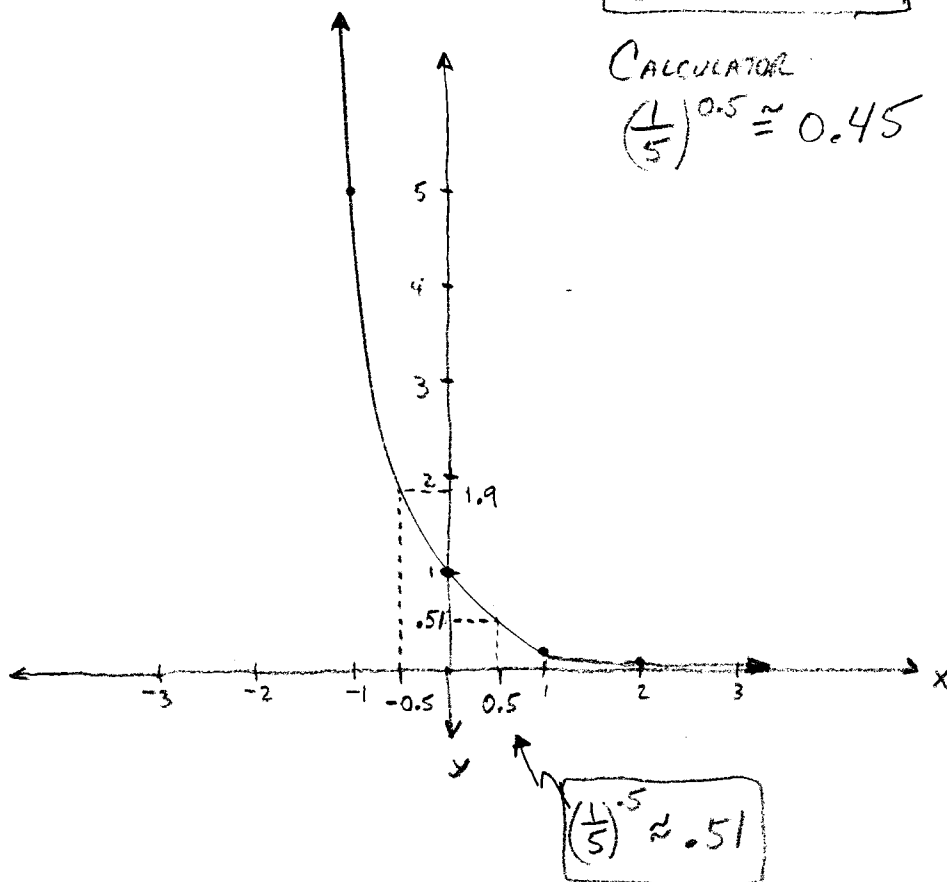


16) GRAPH $y = (\frac{1}{5})^x$ ESTIMATE $(\frac{1}{5})^{0.5}$

X	Y
-2	25
-1	5
0	1
1	$\frac{1}{5}$
2	$\frac{1}{25}$

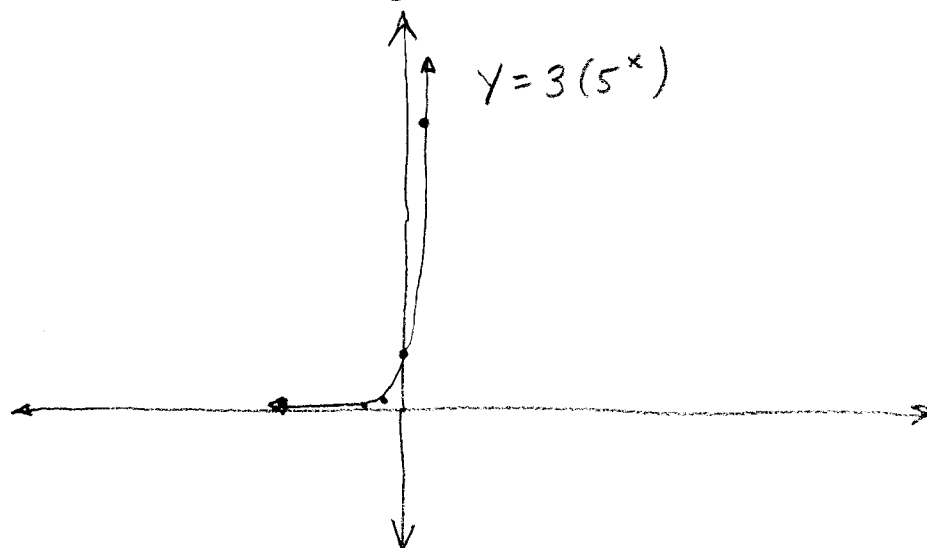
$$\left(\frac{1}{5}\right)^{0.5} \approx 0.51$$

CALCULATOR
 $\left(\frac{1}{5}\right)^{0.5} \approx 0.45$



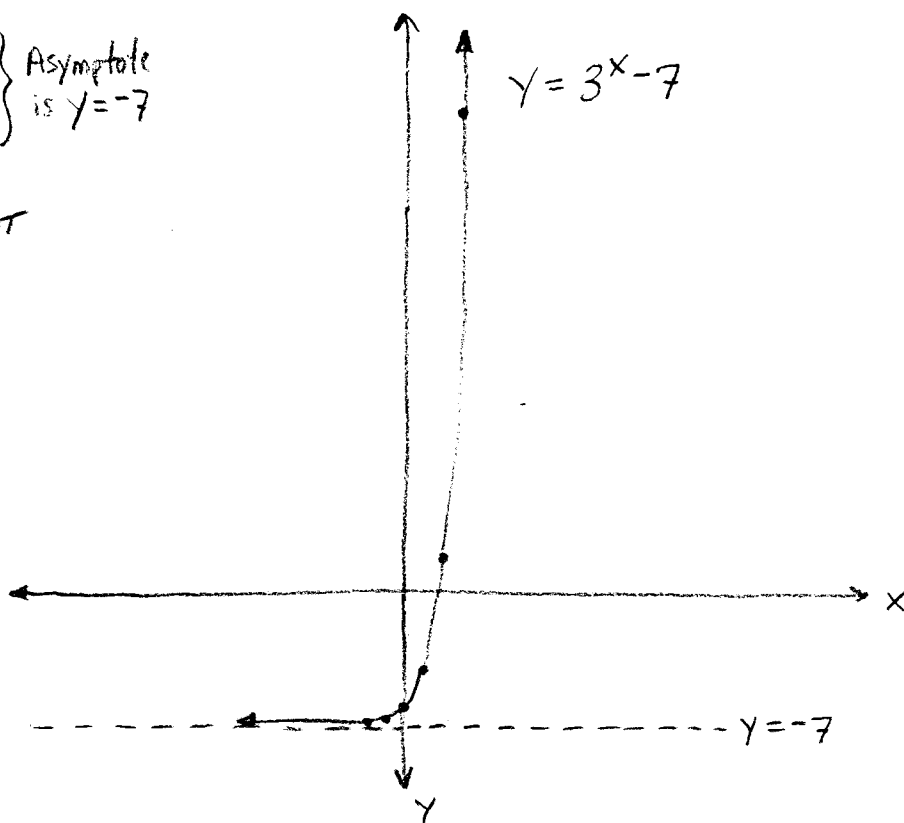
②② Graph $y = 3(5^x)$, STATE y -intercept $\Rightarrow x=0$

x	$3(5^x)$
-2	$3 \cdot (5^{-2}) = 3 \cdot \frac{1}{25} = \frac{3}{25}$
-1	$\frac{3}{5}$
0	$3(5^0) = 3 \cdot (1) = 3$
	y -intercept
1	15
2	75



②① Graph $y = 3^x - 7$ State y -int

x	$3^x - 7$
-2	$\frac{1}{9} - 7 = -6\frac{8}{9}$
-1	$\frac{1}{3} - 7 = -6\frac{2}{3}$
0	$1 - 7 = -6$
1	$3^1 - 7 = -4$
2	$3^2 - 7 = 2$
3	$3^3 - 7 = 25$



Pg 558 # 28-31 (CONTINUED)

28)

X	0	1	2	3
Y	1	0.5	0.25	0.125

 $\Rightarrow$ X VALUES ARE "regular" +1
 $\Rightarrow$ Y VALUES $\Rightarrow$ times $\frac{1}{2}$

Yes, exponential, of form $y = \left(\frac{1}{2}\right)^x$

29)

X	10	20	30	40
Y	16	12	9	6.75

 $\Rightarrow$ X VALUES REGULAR, +10
 $\Rightarrow$ Y VALUES $\Rightarrow$ times $\frac{12}{16} = \frac{3}{4}$?

$$\frac{3}{4} \cdot 16 = 12 \checkmark \quad \frac{3}{4} \cdot 12 = 9 \checkmark \quad \frac{3}{4} \cdot 9 = \frac{27}{4} = 6\frac{3}{4} \checkmark$$

Yes, exponential of form $y = \left(\frac{3}{4}\right)^x$

30)

X	-1	0	1	2
Y	-0.5	1.0	-2.0	4.0

Y's ARE "switching signs,"
NOT EXPONENTIAL

31)

X	3	6	9	12
Y	5	5	5	5

Y's ARE CONSTANT, NOT
EXPONENTIAL

5
Homework: Page 559 #36

Set up an exponential function
to find the answer