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Date: _____

Scaffolded Practice: Comparing Exponential Functions

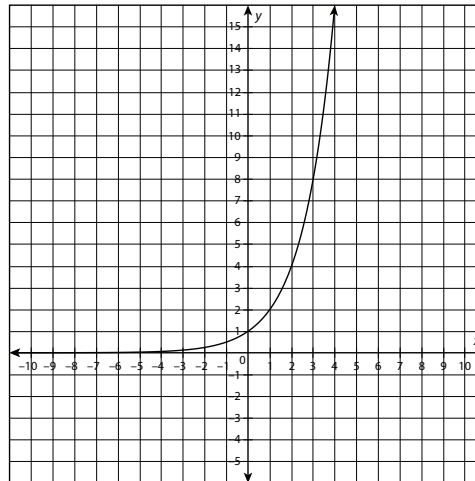
For problems 1–4, identify which function has a greater rate of change on the specified interval.

1. Which function has a greater rate of change on the interval $0 \leq x \leq 2$?

Function A

$$f(x) = 3^x$$

Function B

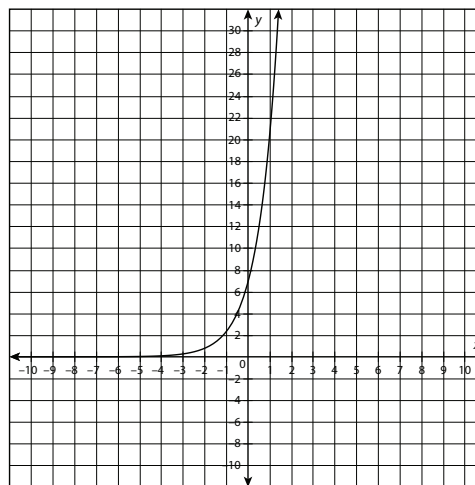


2. Which function has a greater rate of change on the interval $-2 \leq x \leq 0$?

Function A

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

Function B



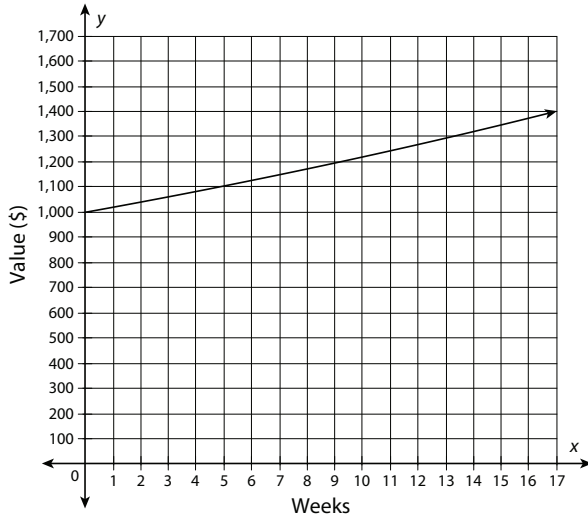
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3. What is the rate of change of Function B on the interval $0 \leq x \leq 1$? Which of the functions has a greater rate of change on this interval?

Function A



Function B

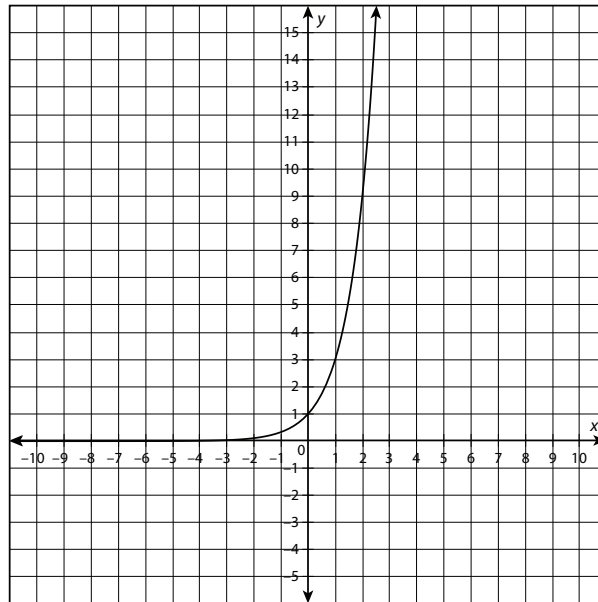
A loan of \$1,500 accumulates 5% interest every week.

4. Which has a greater rate of change on the interval $0 \leq x \leq 5$?

Function A

$$f(x) = 2.7^x$$

Function B



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Use the following functions for problems 5 and 6.

Function A: A loan of \$100 accumulates 1.5% interest every month.

Function B: $f(x) = 2 \cdot 4^x$, where x represents months

5. Which has a greater rate of change on the interval $0 \leq x \leq 2$?
6. What is the rate of change of Function A on the interval $0 \leq x \leq 1$?
7. What is the rate of change of Function B on the interval $0 \leq x \leq 1$? Which function has a greater rate of change on that interval?

Function A

$$f(x) = 100(1 + 0.15)^x$$

Function B

| x | $g(x)$ |
|-----|--------|
| 0 | 1,700 |
| 1 | 1,600 |
| 2 | 1,400 |
| 3 | 1,000 |

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Use the following functions for problems 8–10.

Function A

| x | $g(x)$ |
|-----|--------|
| 1 | 2 |
| 3 | 8 |
| 5 | 32 |
| 7 | 128 |

Function B

$$f(x) = 1^x$$

8. What is the rate of change of Function A on the interval $1 \leq x \leq 2$?

9. What is the rate of change of Function A on the interval $1 \leq x \leq 5$?

10. What is the rate of change of Function B on the interval $1 \leq x \leq 5$? Which function has a greater rate of change, Function A or Function B?