$\log_x a$

$\log_a b = 2.5752$ and $\log_{10} b = 1.8$

Therefore, $\log_{10} a$ must equal to $\frac{1.8}{2.5752} = 0.69897$

Treating both sides of equation $\log_{10} a = 0.69897$ as exponents of 10 gives $a = 10^{0.69897} = 5$

10. An investment of $1,600$ is worth $7,400$ after 8.5 years. What is the continuously compounded rate of return of this investment?

1 / 1 point

- (●) 18.02%
- ( ) 19.01%
- ( ) 17.01%
- ( ) 20.01

✓ Correct

$$\frac{\ln \frac{7400}{1600}}{8.5} = 0.18017$$

11. A pearl grows in an oyster at a continuously compounded rate of $.24$ per year. If a 25-year old pearl weighs 1 gram, what did it weigh when it began to form?

1 / 1 point

- ( ) 0.02478
- ( ) 0.2478
- ( ) 0.0002478
- (●) 0.002478

✓ Correct

$$e^{(0.24\times25)} = \frac{1}{x}$$

$$x = \frac{1}{(e^{0.24\times25})}$$

$$x = \frac{1}{403.4288}$$

$$x = 0.002478$$

12. $\log_2 z = 6.754$. What is $\log_{10}(z)$?

1 / 1 point

- ( ) 1.3508
- ( ) 0.82956
- ( ) 0.49185
- (●) 2.03316

✓ Correct

$$\frac{\log_2 z}{\log_2 10} =$$

$$(\log_{10} z) \times (\log_2 10) = 3.321928$$

Therefore, $\log_{10} z = \frac{6.754}{3.321928} = 2.03316$

13. Suppose that $g : \mathbb{R} \to \mathbb{R}$ is a function, and that $g(1) = 10$. Suppose that $g'(a)$ is negative for every single value of a.Which of the following could possibly be $g(1.5)$?

1 / 1 point

- (●) $g(1.5) = 9.7$
- ( ) $g(1.5) = 10.1$
- ( ) $g(1.5) = 11$
- ( ) $g(1.5) = 103.4$

✓ Correct

Since the slope of the tangent line to the graph of g is negative everywhere on the graph, we know that g is *decreasing* function! And therefore we must have $g(1.5) < g(1)$. That is the case here, so this value is at least possible.