

Classroom Voting Questions: Calculus I

3.2 The Exponential Function

1. $\frac{d}{dx}(e^x)$ is
 - (a) xe^{x-1}
 - (b) e^x
 - (c) $e^x \ln x$
 - (d) 0
 - (e) Cannot be determined from what we know

2. $\frac{d}{dx}(5^x)$ is
 - (a) $x5^{x-1}$
 - (b) 5^x
 - (c) $5^x \ln x$
 - (d) $5^x \ln 5$
 - (e) Cannot be determined from what we know

3. $\frac{d}{dx}(x^e)$ is
 - (a) ex^{e-1}
 - (b) x^e
 - (c) $x^e \ln x$
 - (d) ex
 - (e) Cannot be determined from what we know

4. $\frac{d}{dx}(e^7)$ is
 - (a) $7e^6$
 - (b) e^7
 - (c) $e^7 \ln 7$
 - (d) 0
 - (e) Cannot be determined from what we know

5. $\frac{d}{dx}(3e^x)$ is
- (a) $3xe^{x-1}$
 - (b) $3e^x$
 - (c) $e^x \ln 3$
 - (d) 3
 - (e) Cannot be determined from what we know

6. $\frac{d}{dx}(2 \cdot 5^x)$ is
- (a) 10^x
 - (b) $2 \cdot 5^x$
 - (c) $10^x \ln 10$
 - (d) $2 \cdot 5^x \ln 5$
 - (e) $10^x \ln 5$
 - (f) Cannot be determined from what we know

7. $\frac{d}{dx}(xe^x)$ is
- (a) x^2e^{x-1}
 - (b) xe^x
 - (c) $e^x \ln x$
 - (d) Cannot be determined from what we know

8. If $\ln x - y = 0$, find $\frac{dx}{dy}$.
- (a) $\frac{dx}{dy} = e^x$
 - (b) $\frac{dx}{dy} = e^{-x}$
 - (c) $\frac{dx}{dy} = e^y$
 - (d) $\frac{dx}{dy} = e^{-y}$
 - (e) Cannot be determined from this expression

9. $\frac{d}{dx}(e^{x+2})$ is
- (a) $(x+2)e^{x+1}$

- (b) e^2e^x
- (c) e^2
- (d) 0
- (e) Cannot be determined from what we know

10. $\frac{d}{dx}(e^{2x})$ is

- (a) e^{2x}
- (b) e^2e^x
- (c) 0
- (d) Cannot be determined from what we know

11. If $u = 5^v$, find $\frac{d^2u}{dv^2}$.

- (a) $\frac{d^2u}{dv^2} = 0$
- (b) $\frac{d^2u}{dv^2} = 5^v$
- (c) $\frac{d^2u}{dv^2} = 5^v \ln 5$
- (d) $\frac{d^2u}{dv^2} = 5^v (\ln 5)^2$
- (e) $\frac{d^2u}{dv^2} = v(v-1)5^{v-2}$
- (f) Cannot be determined from what we know

12. If $u = ve^w + xy^v$, find $\frac{du}{dv}$.

- (a) $\frac{du}{dv} = e^w + xy^v \ln y$
- (b) $\frac{du}{dv} = ve^w + xy^v \ln y$
- (c) $\frac{du}{dv} = e^w + xy^v \ln v$
- (d) $\frac{du}{dv} = ve^w + xy^v \ln v$
- (e) Cannot be determined from what we know

13. Find the equation of the line that is tangent to the function $g(x) = 2e^x$ at $x = 1$.

- (a) $y = 2e^x x$
- (b) $y = 2ex$
- (c) $y = 2e^x x + 2e$
- (d) $y = 2ex + 2e$
- (e) None of the above