

1. (1 point) To find u_1 and u_2 we would need to integrate which of the following? Mark all that apply.

- A. $-\frac{f(x)W}{y_2}$
- B. $\frac{y_2 f(x)}{W}$
- C. $\frac{f(x)W}{y_1}$
- D. $-\frac{y_2 W}{f(x)}$
- E. $\frac{y_1 f(x)}{W}$
- F. $-\frac{y_1 f(x)}{W}$
- G. $-\frac{y_2 f(x)}{W}$
- H. $\frac{y_1 W}{f(x)}$
- I. None of the above

Consider the differential equation $x^4 y'' - 16y = 3x^7$. Note that the general solution to the underlying homogeneous differential equation is $y_h = c_1 e^{4x} + c_2 e^{-4x}$. With the notation given in the video, what are the y_1 , y_2 , and $f(x)$ that we would use to find u'_1 and u'_2 ?

- A. $y_1 = e^{4x}$, $y_2 = e^{-4x}$, $f(x) = x^{16}$
- B. $y_1 = e^{4x}$, $y_2 = e^{-4x}$, $f(x) = 3x^7$
- C. $y_1 = e^{4x}$, $y_2 = e^{-4x}$, $f(x) = 3x^3$
- D. $y_1 = x^4$, $y_2 = x^{-4}$, $f(x) = 3x^3$

3. (1 point) Suppose we have a differential equation $y'' + P(x)y' + Q(x)y = x^6$, and we know $y_1 = x^2$ and $y_2 = x^5$ form a fundamental set of solutions for the homogeneous differential equation $y'' + P(x)y' + Q(x)y = 0$.

Then

$W(y_1, y_2) =$ _____.

$u_1 =$ _____.

$u_2 =$ _____.

4. (1 point)

Enter a value for π
