12+7.25

Pre-Assessment

19.25

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Background

1. Jennifer Lin (she/her), Political Science, American Politics
2. I hope to gain a better understanding of math concepts and broaden my understanding of R. I feel that I have a pretty good foundation in R, but much of it is also self-taught.

Questions

+12

1. Basics
   a. Symbols
      a. Probability (Π) such that for a binomial distribution, the Π yields the probability of success while (1 - Π) is the probability of failure
      b. Summation notation (Σ) that reflects adding values in a set
   b. Math

that is usually p, unless population level p

1. $4 \geq x - 7$

$11 \geq x$

2. $-9x + 2 > 3$

$-9x > 1$

$x < -\frac{1}{9}$

3. $|x - 2| \leq 2$

$x - 2 \leq 2 \quad x - 2 \geq -2$

$x \leq 4 \quad x \geq 0 \quad 0 \leq x \leq 4$

4. $2e^{6x} = 18$

$e^{6x} = 9$

$\ln e^{6x} = \ln 9$

$6x = \ln 9$

$x = \frac{\ln 9}{6}$

5. $e^{x^2} = 1$

$\ln e^{x^2} = \ln 1$

$x^2 = \ln 1$

$x = \sqrt{\ln 1}$

6. $\ln(x^2) = 5$

$e^{\ln(x^2)} = e^5$

$x^2 = e^5$

$x = \sqrt{e^5}$

7. $\sum_{n=1}^{10} 3 + n$

$(3+1) + (3+2) + (3+3) +$
$(3+4) + (3+5) + (3+6)$
$(3+7) + (3+8) + (3+9) +$
$(3+10)$

7 cont

$4+5+6+7+8+9+$
$10+11+12+13 =$

85

6. $4! = 4 \times 3 \times 2 \times 1$

24

9. $\left(\frac{x^4 y^{-3}}{x^2 y^3}\right)^3$

$\frac{x^{12} y^{-9}}{x^6 y^9} = \frac{x^{12}}{x^6 y^{18}}$ (6)

$\frac{x^6}{y^{18}}$

c. Factor

1. $m^2 + 3m + 2$

$(m+1)(m+2)$

2. $x^2 + 5x + 6$

$(x+2)(x+3)$

3. $x^2 + x$

$x(x+1)$

2. Set Theory
   a.
   b. a. {3, 4, 5 , bat, triangle, forklift}
3. Matrix Algebra
   a. None
   b.

$$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & 7 & 8 \\ 9 & 10 & 11 & 12 \end{pmatrix}$$

5. Calculus
   a. 4
   b. $6m - 8$
6. Probability
   a. Probability of event A occurring
   b. An event that occurs without regard to another event occurring
7. Statistics
   a. Continuous variables take all values within a boundary whereas descrite variables only take specific values in a set