

DIFFERENTIATION CHAT UP LINES ☺

$y = x(\exp(x^2))$ $y' = (\exp(x^2)) + 2x(\exp(x^2))$
 $y' = 3e$

$y = (x^2)(\exp(x))$ $y' = 2x(\exp(x)) + x^2(\exp(x))$
 $y' = 3e$

$y = \exp(x)(x^2)$ $y' = 3x^2(\exp(x^2))$
 $y' = 3e$

$\exp(y) = (x^2)x$ $y' = \frac{3}{x}$
 $y' = 3$

$xy = (\exp(x^2))$ $y' = \frac{2x^2(\exp(x^2)) - \exp(x^2)}{x^2}$
 $y' = e$

ALS Shaun JACK

The Product, Chain and Quotient Rules.

- $y = \exp((x^2)x)$ $y' = 3x^2 e^{(x^2)}$ $y'(1) = 3e$
- $y = x(\exp(x^2))$ $y' = e^{(x^2)} + 2e^{(x^2)}x$ $y'(1) = 3e$
- $y = (x^2)\exp(x)$ $y' = 2xe^x + e^x x^2$ $y'(1) = 3e$
- $\exp y = (x)(x^2)$ $y' = \frac{3}{x}$ $y'(1) = 3$
- $(\exp(x^2))y = x$ $y' = \frac{2x^2 e^{(x^2)} - e^{(x^2)}x}{e^{2x^2}}$ $y'(1) = -\frac{1}{e}$
- $\exp(x)y = (x^2)$ $y' = \frac{2xe^x - e^x x^2}{e^{2x}}$ $y'(1) = \frac{1}{e}$
- $(x^2)y = \exp(x)$ $y' = \frac{e^x x^2 - 2xe^x}{x^4}$ $y'(1) = -e$
- $xy = (\exp(x^2))$ $y' = \frac{2x^2 e^{(x^2)} - e^{(x^2)}}{x^2}$ $y'(1) = e$

Product Rule $y = uv, y' = u'v + v'u$

Chain Rule $y = f(g(x)), y' = f'(g(x))g'(x)$

Quotient Rule $y = \frac{u}{v}, y' = \frac{u'v - v'u}{v^2}$

by Tom, Matt, Rachel and Megan.

Task Duration and Immediate Predecessors

Task	Duration (-)	Immediate Predecessors
A	15	—
B	20	—
C	10	A, B
D	6	A
E	25	B, D
F	23	C

Resource Histogram

CASCADE CHART

- /// = Critical path (B(20), C(10), F(23))
- /// = Interfering Floats (A-S, D, E-F)
- /// = Critical Activities

KELLY, HAYLEY + TILLY

SKews Show the distribution of data, and the groups they belong to.

HELPERS US TO COMPARE + CONTRAST TWO OR MORE SETS OF DATA

Try it Yourself!

Cumulative Distribution:

normal (gauss) distribution for C.F. graphs...

By Tilly

Measures OF Central Tendency & Dispersion

0, 1, 1, 2, 2, 3, 4, 5, 7, 7, 7

Mean = $\frac{\sum x}{n}$, average of all values.
3.54 + Takes all values. - Doesn't exclude Outliers

Mode = The most common set of data.
7 + Easy to calculate. - Can be misleading.

Range = Highest value - lowest Value
7 + Show how widely spread values. - Doesn't exclude outliers. - Can be misleading.

Percentiles
 To find a percentile multiply total cumulative frequency by Percentile. Draw a line from value on the c.f. axis across to the graph and down to the x point.

Median = $\frac{n+1}{2}$, middle value
3 + good average value + doesn't include outliers - doesn't consider all points

Midrange = $\frac{(u+l)}{2}$, midpoint between 2 upper & lower points.
3.5 + easy to calculate - outliers have massive effect.

Quartiles = Q_1, Q_2, Q_3
 $Q_1 = \frac{1}{4}$ point
 $Q_2 = \text{median}$
 $Q_3 = \frac{3}{4}$ point

0, 1, 1, 2, 2, 3, 4, 5, 7, 7, 7
 $Q_1 = 1, Q_2 = 2, Q_3 = 4$

Interquartile Range = $Q_3 - Q_1$, $\frac{3}{4}$ point minus $\frac{1}{4}$ point
 $4 - 1 = 3$

by Leo & ...

EXPANDING BRACKETS

(REMOVING THE BRACKETS)

FOIL METHOD

Smiley Face Method

$(x+1)(x+2)$

First = $x \times x = x^2$

Outer = $x \times 2 = 2x$

Inner = $1 \times x = x$

Last = $1 \times 2 = 2$

$= x^2 + 3x + 2$

Left eyebrow = $x \times x = x^2$

Right eyebrow = $3 \times 2 = 6$

Nose = $3 \times x = 3x$

Mouth = $x \times 2 = 2x$

$= x^2 + 5x + 6$

$(x+4)(x+2)$

First = $x \times x = x^2$

Outer = $x \times 2 = 2x$

Inner = $4 \times x = 4x$

Last = $4 \times 2 = 8$

$= x^2 + 6x + 8$

by Leo & ...