

Sum/Diff Quiz
 Homework Questions
 Calendar Math
 1.4 Binomial Theorem
 HW 1.4 Binomial Theorem Worksheet
 #1-10

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The characteristic of interest that describes the population.

Parameter

(could be an average or percentage etc.)

20% of all teens text while driving

20% of teens at CHHS text while driving

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The characteristic of interest that describes the sample.

Statistics

It is used to predict the parameter.

20% teens in our sample of 250 teens in Utah text while driving

20% of the teens in the US that text while driving

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The process in statistics of forming conclusions about the population of interest.

Inference

Includes proper methods of sampling the practices of statistics to analyze data.

Since 20% of the 250 teens in our sample text while driving infers that 20% of all teens in Utah text while driving.

20% of all teens text while driving

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The process of selecting our sample in a way that all are equally likely to be chosen.

Random Sampling

Non-biased

40 people are randomly selected from our population using a random digits generator.

every 5th person is selected to be in our sample (systematic sampling)

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Homework Questions...

$$\begin{aligned}
 & 1) (4x^3 - 13x^2 - 63x) \\
 & \quad \times (6x^2 + 3x - 63) \\
 & \quad a \quad b \\
 & \quad \cancel{-378} \\
 & \quad \cancel{X(6x^2 - 27)(6x^2 + 14)} - 27 \quad 14 \\
 & \quad X(2x-9)(3x+7) \\
 & \quad -13
 \end{aligned}$$

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$$\begin{aligned} 25) \quad & x^3 - 36x \\ & x(x^2 - 36) \\ & x(x+6)(x-6) \end{aligned}$$

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$$\begin{aligned} 20) \quad & 4t m^3 + 1 \\ & (4m+1)(16m^2 - 4m + 1) \end{aligned}$$

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$$\begin{aligned} 17) \quad & \underline{27u^3 - 8} \\ & \sqrt[3]{27} \quad \sqrt[3]{8} \\ & \underline{3} \quad \underline{2} \quad (3u-2)(9u^2 + 6u + 4) \\ & (3u)^2 \end{aligned}$$

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$$\begin{aligned} 18) \quad & 27x^3 + 64 \\ & \quad \quad \quad 3 \quad \quad \quad 4 \\ & (3x+4)(9x^2 - 12x + 16) \end{aligned}$$

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$$\begin{aligned} 11) \quad & 9n^2 + 16 \\ & (3n+4)(3n-4) \end{aligned}$$

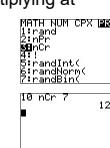
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Binomial Theorem: a formula for finding any power of a binomial without multiplying at length.

Calculator: nCr or n choose r

Start the 1st term

Start with 1



Pascal's Triangle: is a triangle of numbers where each number is the sum of the two numbers above it added together (except for the edges, which are all "1").



$$(a+b)^0 = 1$$

$$(a+b)^1 = a+b$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

$$(a+b)^4 = a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4$$

$$(a+b)^5 = a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + b^5$$

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$$(b+2)^4$$

$$a=b$$

$$b=2$$

$$a^4 = b^4$$

$$4a^3b = 4(b^3)(2) = 8b^3$$

$$6a^2b^2 = 6(b^2)(4) = 24b^2$$

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Examples

Expand $(x+4)^4$

$a^4 \cdot x$

$b^4 \cdot 4$

$a^4 \cdot x^4$

$4a^3b \cdot 4(x^3)(4)$

$6a^2b^2 \cdot 6(x^2)(1b)$

$= 96x^2$

$4ab^3 \cdot 4(x)(b^4)$

$b^4 \cdot (4)^4 = 256$

x^4	$16x^3$	$96x^2$
$256x$	256	

$x^4 + 16x^3 + 96x^2 + 256x + 256$

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