

$$A = P \left(1 + \frac{r}{m}\right)^{mt}$$

$$\frac{A}{P} = \left(1 + \frac{r}{m}\right)^{mt}$$

$$\log_{1 + \frac{r}{m}} \left(\frac{A}{P}\right) = mt$$

$$\frac{\log_{1 + \frac{r}{m}} \left(\frac{A}{P}\right)}{m} = t$$

$$\ln\left(\frac{A}{P}\right) = \ln\left(1 + \frac{r}{m}\right)^{mt}$$

$$\ln\left(\frac{A}{P}\right) = m \ln\left(1 + \frac{r}{m}\right) t$$

$$\frac{\ln\left(\frac{A}{P}\right)}{m \ln\left(1 + \frac{r}{m}\right)} = t$$

#9 Done in class day B4.

$$7^{x-3} = 5^x$$

$$\log_7(7^{x-3}) = \log_7(5^x)$$

$$x-3 = x \log_7(5)$$

$$x - x \log_7(5) = 3$$

$$x(1 - \log_7(5)) = 3$$

$$x = \frac{3}{1 - \log_7(5)}$$

$$\ln(7^{x-3}) = \ln(5^x)$$

$$\ln(7)(x-3) = \ln(5)x$$

$$let\ a = \ln(7),\ b = \ln(5)$$

$$a(x-3) = bx$$

$$ax - 3a = bx$$

$$ax - bx = 3a$$

$$x(a-b) = 3a$$

$$x = \frac{3a}{a-b} = \frac{3 \ln(7)}{\ln(7) - \ln(5)} \approx$$

$$\log_5(7^{x-3}) = \log_5(5^x)$$

$$(x-3)\log_5(7) = x$$

$$\log_5(7)x - 3\log_5(7) = x$$

$$\log_5(7)x - x = 3\log_5(7)$$

$$x(\log_5(7) - 1) = 3\log_5(7)$$

$$x = \frac{3\log_5(7)}{\log_5(7) - 1}$$

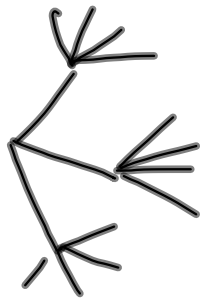
$$\frac{3}{1 - \frac{\ln 5}{\ln 7}}$$

$$\frac{3 \frac{\ln 7}{\ln 5}}{\frac{\ln 7}{\ln 5} - 1}$$

Monday - Quiz over \subseteq & homework

8.4 4 2.3 = 6

6 3.4 = 12



38 $P(11,11) = \frac{11!}{(11-11)!} = \frac{11!}{1} = 11!$

(54) $2 \cdot 2 \cdot 2 \cdot 2 = 2^4 = 16$

Think of the eventual decision as a subset of the 4 candidates.

~~$\{x | x \text{ got tenure}\}$~~

The number of subsets is always 2^n

$$C(4,2) = \frac{4!}{2!2!} = \frac{4 \cdot 3 \cdot 2 \cdot 1}{2 \cdot 2} = 6$$

0	got it	$C(4,0)$	1
1	got it	$C(4,1)$	4
2	got it	$C(4,2)$	6
3	$C(4,3)$	4
4	$C(4,4)$	<u>1</u>
			16

(12) 1 of each suit 4 cards out of 52

$$\underline{13} \quad \underline{13} \quad \underline{13} \quad \underline{13} = 13^4 = 28,561$$

How many ways to get a full house?

$$C(13,1) C(12,1) C(4,3) C(4,2)$$

Choose
which will
be the 3
cards

Choose
the other
denomination

Choose 3
out of
4

Choose 2
out of 4

How many 5-card hands are there?

$$C(52,5) = 3,598,960$$

$$\frac{52!}{47! 5!} = \frac{52 \cdot 51 \cdot \overset{10}{50} \cdot 49 \cdot \overset{2}{48}}{\underset{1}{5} \cdot \underset{1}{4} \cdot 3 \cdot 2} = 52 \cdot 51 \cdot 10 \cdot 49 \cdot 2$$

#14 $3 \cdot 2 \cdot 2^4 \cdot 2^5 =$
 $6 \cdot 16 \cdot 32 = 3072$

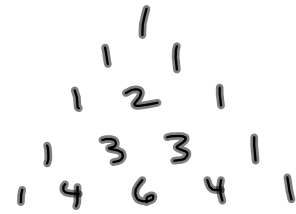
8.5 #20 $C(3, 2) = 3 = C(3, 1)$
 $\{F, C\}, \{F, T\}, \{C, T\}$

#36 3 Buicks (identical) } How many
 4 Fords .. } distinct rearrange-
 3 Toys .. } ments

$\frac{10!}{3!4!3!}$

BBB FFFF TT T
 BFB BFFF TTT
 ...

$(x+5)^2 = 1x^2 + 2 \cdot x \cdot 5 + 5^2$
 $= x^2 + 10x + 25$



$(y-2)^4 = 1y^4 + 4(y)^3(-2) + 6(y)^2(-2)^2 + 4(y)^1(-2)^3 + 1(-2)^4$

(-2)⁰ $\leftarrow \frac{4}{10} \rightarrow$ *y⁰*

$= y^4 - 8y^3 + 24y^2 - 32y + 16$

#60 on Monday quiz.

LOOK AT OLD FINALS