Eda keskin Pd 5

$-16t^2 +$ initial h

Extraneous Check, no rad frees.

$$\frac{-b \pm \sqrt{b^2-4ac}}{2a} = x$$

$b^2-4ac=0$ 1 sln

$b^2-4ac<0$ 2 imaginary

$>0$ 2 real

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R = S · P

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

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

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

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

$a(x-h)^2+k=y$

$ax+by=c$

$a(x-p)(x-q)=y$

even $f(x)$: $f(-x)=f(x)$

odd $f(x)$: $f(-x)=-f(x)$

even exp: bounce

odd exp: cross

vertex: (h,k)

Domain Restrictions:

$$\frac{2}{x+3} \div \frac{3x}{5x}$$

not 0 ; not 0 ; not 0 ; not 0

| | horiz asymptote | vertical asymptote |
|---|---|---|
| $\frac{a}{x-h}+k$ | $y=k$ | $x=h$ |
| $\frac{ax+b}{cx+d}$ | $y=\frac{a}{c}$ | $y=-\frac{d}{c}$ |
| $\frac{a}{x}$ | x-axis | y-axis |

| Direct | Inverse |
|---|---|
| $y=ax$ | $y=\frac{a}{x}$ |
| $\frac{y}{x}=a$ | $yx=a$ |

Method of Data Collection

- Experiment
- observational study
- survey
- Simulation

Types of Data

- Self selected Sample
- Systematic Sample
- Stratified Sample
- Cluster Sample
- Convenience Sample

Rational Roots theorem

$x^3+20$ $\pm\frac{p}{q}$

q p

1 20

5·4

5·2·2

1 0 0 20 | possible

nums 0

make into trinomial then factor the parabola

68%

95%

99.7%

$\mu \pm z\sigma$ = data value

Pop: parameter

Sample: Statistic

Exp Growth/Decay

$y = a(1 \pm r)^t$

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Compound Interest

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

r: rate

n: compounding

t: time

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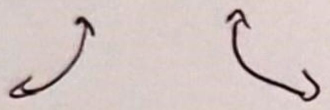
Continuously Compounded Interest

$A = Pe^{rt}$

$r > 0$ $r < 0$



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$y = ab^x$ log base of y is equal to x

$\log_b y = x$

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$b^{\log_b x} = y$ $\log_b b^x$

$x = y$ $x = y$

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$\log_b x = \frac{\log_{10} x}{\log_{10} b}$

$a^m a^n = a^{m+n}$ $\log_b mn = \log_b m + \log_b n$

$a^m / a^n = a^{m-n}$ $\log \frac{m}{n} = \log_b m - \log_b n$

$(a^m)^n = a^{mn}$ $\log_b m^n = n \log_b (m)$

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Explicit forms:

Arithmetic: $a_1 + d(n-1)$ Linear

Geometric: $a_1 (r)^{n-1}$ Exponential

| Arithmetic | Geometric |
| --- | --- |
| n (finite) | n (finite) |
| $\frac{n}{2}(a_1 + a_n)$ | $a_1 \left(\frac{1-r^n}{1-r}\right)$ |
| $n(\infty)$ | $n(\infty)$ |
| NO SOL | if $(r < 1)$: sequence converges to $\frac{a_1}{1-r}$ |
| | elif $(r \geq 1)$: sequence diverges (forever) |