








Egyptian

| Number | Picture | Symbol |
|-----------|-----------------|--|
| 1 | Stroke |  |
| 10 | Heel bone |  |
| 100 | Coil of rope |  |
| 1000 | Lotus Flower |  |
| 10,000 | Pointing Finger |  |
| 100,000 | Tadpole |  |
| 1,000,000 | Astonished man |  |


Roman

| | | | | | | | |
|---------------------|---|---|----|----|-----|-----|------|
| Roman | I | V | X | L | C | D | M |
| Hindu-Arabic | 1 | 5 | 10 | 50 | 100 | 500 | 1000 |

Ionic Greek

| Letter | Value |
|------------------------|-------|
| α alpha | 1 |
| β beta | 2 |
| γ gamma | 3 |
| δ delta | 4 |
| ϵ epsilon | 5 |
| ς digamma | 6 |
| ζ zeta | 7 |
| η eta | 8 |
| θ theta | 9 |

| Letter | Value |
|-----------------------|-------|
| ι iota | 10 |
| κ kappa | 20 |
| λ lambda | 30 |
| μ mu | 40 |
| ν nu | 50 |
| ξ xi | 60 |
| \omicron omicron | 70 |
| π pi | 80 |
| Q koppa | 90 |

| Letter | Value |
|--|-------|
| ρ rho | 100 |
| σ sigma | 200 |
| τ tau | 300 |
| υ upsilon | 400 |
| ϕ phi | 500 |
| χ chi | 600 |
| ψ psi | 700 |
| ω omega | 800 |
|  sampi | 900 |

Appendix A: Systems of Numeration Charts

Chinese


| Number | Symbol |
|--------|--------|
| 0 | 零 |
| 1 | 一 |
| 2 | 二 |
| 3 | 三 |
| 4 | 四 |
| 5 | 五 |
| 6 | 六 |

| Number | Symbol |
|--------|--------|
| 7 | 七 |
| 8 | 八 |
| 9 | 九 |
| 10 | 十 |
| 100 | 百 |
| 1000 | 千 |

Babylonian

Base 60 One = | Ten = <

Mayan

| Number | Symbol |
|--------|---|
| 0 |  |
| 1 | • |
| 2 | •• |
| 3 | ••• |
| 4 | •••• |

| Number | Symbol |
|--------|-----------|
| 5 | — |
| 6 | • — |
| 7 | •• — |
| 8 | ••• — |
| 9 | •••• — |

| Number | Symbol |
|--------|------------|
| 10 | == |
| 11 | • == |
| 12 | •• == |
| 13 | ••• == |
| 14 | •••• == |

| Number | Symbol |
|--------|-------------|
| 15 | === |
| 16 | • === |
| 17 | •• === |
| 18 | ••• === |
| 19 | •••• === |

Appendix B: Systems of Measurement Charts

US Customary System:

| | |
|----------------|----------------|
| 1 foot (ft) | 12 inches (in) |
| 1 yard (yd) | 3 feet |
| 1 mile (mi) | 5280 feet |
| 1 pound (lb) | 16 ounces |
| 1 ton (T) | 2000 pounds |
| 1 cup (c) | 8 fluid ounces |
| 1 pint (pt) | 2 cups |
| 1 quart (qt) | 2 pints |
| 1 gallon (gal) | 4 quarts |

Time:

| | |
|----------------|------------------|
| 1 minute (min) | 60 seconds (sec) |
| 1 hour (hr) | 60 minutes |
| 1 day | 24 hours |
| 1 year (yr) | 365 days |

Metric System Prefixes:

| Prefix | Symbol | Meaning |
|--------|--------|---------------------|
| kilo | k | 1000 × base unit |
| hecto | h | 100 × base unit |
| deka | da | 10 × base unit |
| - | - | Base unit |
| deci | d | 1/10 of base unit |
| centi | c | 1/100 of base unit |
| milli | m | 1/1000 of base unit |

Some Metric System Conversions:

| Volume in Cubic Units | Volume in Liters |
|-----------------------|------------------|
| 1 cm ³ | 1 ml |
| 1 dm ³ | 1 l |
| 1 m ³ | 1 kl |

Appendix B: Systems of Measurement Charts

Fahrenheit/Celsius

$$C = \frac{5}{9}(F - 32) \qquad F = \frac{9}{5}C + 32$$

| Celsius | Meaning | Fahrenheit |
|----------------|-------------------------|-------------------|
| 0°C | Freezing point of water | 32°F |
| 100°F | Boiling point of water | 212°F |

US Customary to Metric

| Length | |
|----------------------|------------------------|
| 1 inch | 2.54 centimeters |
| 1 foot | 30.48 centimeters |
| 1 yard | 0.9144 meters |
| 1 mile | 1.609 kilometers |
| Area | |
| 1 in ² | 6.4516 cm ² |
| 1 ft ² | 0.0929 m ² |
| 1 yd ² | 0.8361 m ² |
| 1 mi ² | 2.59 km ² |
| 1 acre | 0.405 hectare (ha) |
| Volume | |
| 1 teaspoon (tsp) | 4.929 milliliters |
| 1 tablespoon (tbsp) | 14.79 milliliters |
| 1 fluid ounce | 29.57 milliliters |
| 1 cup | 0.2366 liters |
| 1 pint | 0.4732 liters |
| 1 quart | 0.9464 liters |
| 1 gallon | 3.785 liters |
| 1 cubic foot | 0.02832 cubic meters |
| 1 cubic yard | 0.7646 cubic meters |
| Weight (Mass) | |
| 1 ounce | 28.35 grams |
| 1 pound | 0.4536 kilograms |
| 1 ton (T) | 0.9 tonne (t) |

I. Perimeter, Area and Volume formulas

Square: $P = 4s$
 $A = s^2$

Rectangle: $P = 2l + 2w$
 $A = lw$

Parallelogram: $A = bh$

Trapezoid: $A = \frac{1}{2}(b_1 + b_2)h$

Triangle: $A = \frac{1}{2}bh$

Circle: $C = 2\pi r$
 $A = \pi r^2$

Closed Box: $A = 2lw + 2lh + 2wh$
 $V = lwh$

Sphere: $A = 4\pi r^2$
 $V = \frac{4}{3}\pi r^3$

Cone: $V = \frac{1}{3}\pi r^2 h$

Cylinder: $A = 2\pi r^2 + 2\pi rh$
 $V = \pi r^2 h$

II. Exponential Growth and Decay

Growth: $P(t) = P_0 e^{kt}$

Decay: $P(t) = P_0 e^{-kt}$

III. Math of Finance

Simple interest: $i = prt$

Future value (simple interest): $A = P(1 + rt)$

Future value (compound interest): $A = P(1 + i)^n$, where $i = \frac{r}{m}$ and $n = mt$

Present value (compound interest): $P = A(1 + i)^{-n}$, where $i = \frac{r}{m}$ and $n = mt$

Future value (annuity): $S = R \left[\frac{(1 + i)^n - 1}{i} \right]$, where $i = \frac{r}{m}$ and $n = mt$

Present value (annuity): $P = R \left[\frac{1 - (1 + i)^{-n}}{i} \right]$, where $i = \frac{r}{m}$ and $n = mt$

Monthly payment (loan): $R = \frac{Pi}{1 - (1 + i)^{-n}}$, where $i = \frac{r}{m}$ and $n = mt$

Effective rate: $r_{eff} = \left(1 + \frac{r}{m} \right)^m - 1$

Tax-free yield: $T_f = T_a(1 - F)$

IV. Miscellaneous

Fahrenheit to Celsius: $C = \frac{5}{9}(F - 32)$

Celsius to Fahrenheit: $F = \frac{9}{5}C + 32$

Pythagorean Theorem: $a^2 + b^2 = c^2$