



# **FAST/B.E.S.T. Mathematics Reference Sheets Packet**

- Grade 4 FAST Mathematics Reference Sheet
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- Grade 7 FAST Mathematics Reference Sheet (2 pages)
- Grade 8 FAST Mathematics Reference Sheet (2 pages)
- B.E.S.T. Algebra 1 EOC Mathematics Reference Sheet
- B.E.S.T. Geometry EOC Mathematics Reference Sheet (2 pages)

**2024–2025**

## Grade 4 FAST Mathematics Reference Sheet

### Customary Conversions

1 foot = 12 inches

1 yard = 3 feet

1 pint = 2 cups

1 quart = 2 pints

1 gallon = 4 quarts

1 pound = 16 ounces

### Time Conversions

1 minute = 60 seconds

1 hour = 60 minutes

### Formulas

Rectangle  $P = l + l + w + w$   
 $A = l \times w$

### Metric Conversions

1 meter = 100 centimeters

1 meter = 1000 millimeters

1 kilometer = 1000 meters

1 liter = 1000 milliliters

1 gram = 1000 milligrams

1 kilogram = 1000 grams

Key	
$l$ = length $w$ = width	$P$ = perimeter $A$ = area

## Grade 5 FAST Mathematics Reference Sheet

### Customary Conversions

1 foot = 12 inches  
 1 yard = 3 feet  
 1 mile = 5,280 feet  
 1 mile = 1,760 yards

1 cup = 8 fluid ounces  
 1 pint = 2 cups  
 1 quart = 2 pints  
 1 gallon = 4 quarts

1 pound = 16 ounces  
 1 ton = 2,000 pounds

### Time Conversions

1 minute = 60 seconds  
 1 hour = 60 minutes  
 1 day = 24 hours  
 1 week = 7 days

### Formulas

Rectangle  $P = l + l + w + w$   
 $P = 2l + 2w$   
 $A = l \times w$

Rectangular Prism  $V = l \times w \times h$   
 or  
 $V = B \times h$

### Metric Conversions

1 centimeter = 10 millimeters  
 1 meter = 100 centimeters  
 1 meter = 1000 millimeters  
 1 kilometer = 1000 meters

1 liter = 1000 milliliters

1 gram = 1000 milligrams  
 1 kilogram = 1000 grams

Key	
$l$ = length	$P$ = perimeter
$w$ = width	$A$ = area
$h$ = height	$V$ = volume
$B$ = area of the base	

## Grade 6 FAST Mathematics Reference Sheet

### Customary Conversions

1 foot = 12 inches  
 1 yard = 3 feet  
 1 mile = 5,280 feet  
 1 mile = 1,760 yards

1 cup = 8 fluid ounces  
 1 pint = 2 cups  
 1 quart = 2 pints  
 1 gallon = 4 quarts

1 pound = 16 ounces  
 1 ton = 2,000 pounds

### Time Conversions

1 minute = 60 seconds  
 1 hour = 60 minutes  
 1 day = 24 hours  
 1 week = 7 days  
 1 year = 365 days  
 1 year = 52 weeks

### Formulas

Rectangular Prism

$$V = lwh$$

or

$$V = Bh$$

### Metric Conversions

1 meter = 100 centimeters  
 1 meter = 1000 millimeters  
 1 kilometer = 1000 meters

1 liter = 1000 milliliters

1 gram = 1000 milligrams  
 1 kilogram = 1000 grams

Key	
$l$ = length	$B$ = area of base
$w$ = width	$V$ = volume
$h$ = height	

## Grade 7 FAST Mathematics Reference Sheet

### Conversions within a System of Measure

#### Customary Conversions

1 foot = 12 inches  
 1 yard = 3 feet  
 1 mile = 5,280 feet  
 1 mile = 1,760 yards

1 cup = 8 fluid ounces  
 1 pint = 2 cups  
 1 quart = 2 pints  
 1 gallon = 4 quarts

1 pound = 16 ounces  
 1 ton = 2,000 pounds

#### Metric Conversions

1 meter = 100 centimeters  
 1 meter = 1000 millimeters  
 1 kilometer = 1000 meters

1 liter = 1000 milliliters

1 gram = 1000 milligrams  
 1 kilogram = 1000 grams

#### Time Conversions

1 minute = 60 seconds  
 1 hour = 60 minutes  
 1 day = 24 hours  
 1 week = 7 days  
 1 year = 365 days  
 1 year = 52 weeks

### Conversions between Systems of Measure

#### Customary to Metric Conversion Approximations

1 inch = 2.54 centimeters  
 1 foot = 0.305 meters  
 1 mile = 1.61 kilometers

1 cup = 0.24 liters  
 1 gallon = 3.785 liters  
 1 ounce = 28.35 grams  
 1 pound = 0.454 kilograms

#### Metric to Customary Conversion Approximations

1 centimeter = 0.39 inches  
 1 meter = 3.28 feet  
 1 kilometer = 0.62 miles

1 liter = 4.23 cups  
 1 liter = 0.264 gallons  
 1 gram = 0.0352 ounces  
 1 kilogram = 2.204 pounds

## Grade 7 FAST Mathematics Reference Sheet

### Formulas

Parallelogram  $A = bh$

Or Rhombus  $A = lw$

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

Circle  $C = 2\pi r$  or  $C = \pi d$

$$A = \pi r^2$$

Right Circular  
Cylinder  $V = Bh$  or  $V = \pi r^2 h$

Key	
$b$ = base	$A$ = area
$h$ = height	$C$ = circumference
$l$ = length	$V$ = volume
$w$ = width	
$r$ = radius	
$d$ = diameter	
$B$ = area of base	

### Simple Interest Formula

$$I = prt$$

where  $I$  = interest,  $p$  = principal,  
 $r$  = rate,  $t$  = time

### Percent Error Formula

$$\frac{|Estimate - Actual|}{Actual} \times 100$$

### Percent of Change

$$\frac{final\ value - initial\ value}{initial\ value} \times 100$$

## Grade 8 FAST Mathematics Reference Sheet

### Conversions within a System of Measure

#### Customary Conversions

1 foot = 12 inches  
 1 yard = 3 feet  
 1 mile = 5,280 feet  
 1 mile = 1,760 yards

1 cup = 8 fluid ounces  
 1 pint = 2 cups  
 1 quart = 2 pints  
 1 gallon = 4 quarts

1 pound = 16 ounces  
 1 ton = 2,000 pounds

#### Metric Conversions

1 meter = 100 centimeters  
 1 meter = 1000 millimeters  
 1 kilometer = 1000 meters

1 liter = 1000 milliliters

1 gram = 1000 milligrams  
 1 kilogram = 1000 grams

#### Time Conversions

1 minute = 60 seconds  
 1 hour = 60 minutes  
 1 day = 24 hours  
 1 week = 7 days  
 1 year = 365 days  
 1 year = 52 weeks

### Conversions between Systems of Measure

#### Customary to Metric Conversion Approximations

1 inch = 2.54 centimeters  
 1 foot = 0.305 meters  
 1 mile = 1.61 kilometers

1 cup = 0.24 liters  
 1 gallon = 3.785 liters  
 1 ounce = 28.35 grams  
 1 pound = 0.454 kilograms

#### Metric to Customary Conversion Approximations

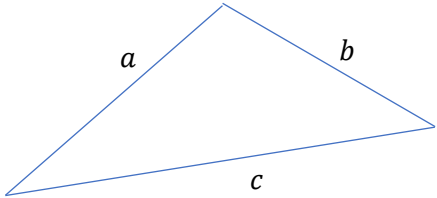
1 centimeter = 0.39 inches  
 1 meter = 3.28 feet  
 1 kilometer = 0.62 miles

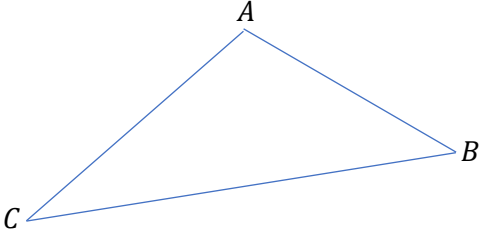
1 liter = 4.23 cups  
 1 liter = 0.264 gallons  
 1 gram = 0.0352 ounces  
 1 kilogram = 2.204 pounds

#### Formula

Slope Formula
$m = \frac{y_2 - y_1}{x_2 - x_1}$ <p>where <math>m</math> = slope</p>

**Grade 8 FAST Mathematics Reference Sheet****Theorems**

<b>Triangle Inequality Theorem</b>	
	$a + b > c$ $a + c > b$ $b + c > a$

<b>Triangle Sum Theorem</b>	
	$m\angle A + m\angle B + m\angle C = 180^\circ$



**B.E.S.T. Algebra 1 EOC Mathematics Reference Sheet****Customary Conversions**

1 foot = 12 inches  
 1 yard = 3 feet  
 1 mile = 5,280 feet  
 1 mile = 1,760 yards

1 cup = 8 fluid ounces  
 1 pint = 2 cups  
 1 quart = 2 pints  
 1 gallon = 4 quarts

1 pound = 16 ounces  
 1 ton = 2,000 pounds

**Metric Conversions**

1 meter = 100 centimeters  
 1 meter = 1000 millimeters  
 1 kilometer = 1000 meters  
 1 liter = 1000 milliliters

1 gram = 1000 milligrams  
 1 kilogram = 1000 grams

**Time Conversions**

1 minute = 60 seconds  
 1 hour = 60 minutes  
 1 day = 24 hours  
 1 year = 365 days  
 1 year = 52 weeks

**Formulas**

<b>Forms of Linear Equations</b>	<b>Forms of Quadratic Functions</b>	<b>Forms of Exponential Functions</b>
$y = mx + b$ $Ax + By = C$ $y - y_1 = m(x - x_1)$	$f(x) = ax^2 + bx + c$ $f(x) = a(x - h)^2 + k$ $f(x) = a(x - p)(x - q)$	$f(x) = ab^x$ $f(x) = a(1 \pm r)^x$

<b>Quadratic Formula</b>
$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ <p>where <math>ax^2 + bx + c = 0</math> and <math>a \neq 0</math></p>

<b>Final Amounts under Simple Interest</b>	<b>Final Amounts under Compound Interest</b>
$A = P(1 + rt)$ <p>where <math>P</math> = principal, <math>r</math> = rate, and <math>t</math> = time</p>	$A = P \left(1 + \frac{r}{n}\right)^{nt}$ <p>where <math>P</math> = principal, <math>r</math> = rate, <math>n</math> = number of times compounded, and <math>t</math> = time</p>

## B.E.S.T. Geometry EOC Mathematics Reference Sheet

### Customary Conversions

1 foot = 12 inches  
 1 yard = 3 feet  
 1 mile = 5,280 feet  
 1 mile = 1,760 yards  
  
 1 cup = 8 fluid ounces  
 1 pint = 2 cups  
 1 quart = 2 pints  
 1 gallon = 4 quarts  
  
 1 pound = 16 ounces  
 1 ton = 2,000 pounds

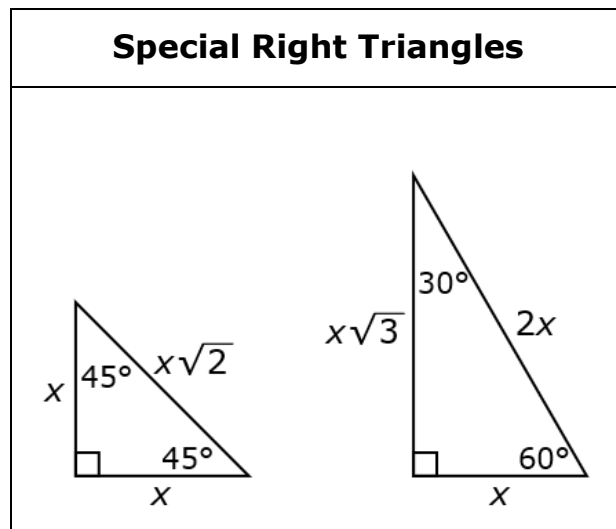
### Metric Conversions

1 meter = 100 centimeters  
 1 meter = 1000 millimeters  
 1 kilometer = 1000 meters  
  
 1 liter = 1000 milliliters  
  
 1 gram = 1000 milligrams  
 1 kilogram = 1000 grams

### Time Conversions

1 minute = 60 seconds  
 1 hour = 60 minutes  
 1 day = 24 hours  
 1 year = 365 days  
 1 year = 52 weeks

Distance Formula	Midpoint Formula	Slope Formula
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	$(x_M, y_M) = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$	$m = \frac{y_2 - y_1}{x_2 - x_1}$



## B.E.S.T. Geometry EOC Mathematics Reference Sheet

### Formulas

Parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$
Circle	$C = 2\pi r$ or $C = \pi d$ $A = \pi r^2$
Regular Polygon	$A = \frac{1}{2}Pa$
Prism/Cylinder	$SA = 2B + Ph$ $V = Bh$
Cone	$SA = B + \pi r h_s$ or $SA = B + \pi r l$ $V = \frac{1}{3}Bh$
Regular Pyramid	$SA = B + \frac{1}{2}Ph_s$ or $SA = B + \frac{1}{2}Pl$ $V = \frac{1}{3}Bh$
Sphere	$SA = 4\pi r^2$ $V = \frac{4}{3}\pi r^3$

Key	
$P$ = perimeter	$A$ = area
$a$ = apothem	$C$ = circumference
$h$ = height	$SA$ = surface area
$r$ = radius	$V$ = volume
$h_s$ = slant height	
$l$ = slant height	
$b$ = base	
$d$ = diameter	
$B$ = area of base	

Trigonometric Ratios		
$\sin \theta = \frac{\textit{opposite}}{\textit{hypotenuse}}$	$\cos \theta = \frac{\textit{adjacent}}{\textit{hypotenuse}}$	$\tan \theta = \frac{\textit{opposite}}{\textit{adjacent}}$