# Grade 6 FAST Math Reference Sheet

## Signed numbers

| | |
|---|---|
| Subtract | **a − b = a + (−b)** |
| Same-sign product | **(−3)(−4) = 12** |
| Opposite-sign product | **(−3)(4) = −12** |

The same sign rules apply to division by a nonzero number.
Absolute value is distance from zero.

## Fraction operations

| | |
|---|---|
| Add or subtract | **a/c ± b/c = (a ± b) / c** |
| Multiply | **(a/b) × (c/d) = ac/(bd)** |
| Divide | **(a/b) ÷ (c/d) = ad/(bc)** |

Find a common denominator for addition or subtraction.
Denominators and divisors cannot be zero.

## Ratios and unit rates

| | |
|---|---|
| Unit rate | **rate = amount / quantity** |
| Example | **$12 ÷ 3 kg = $4 per kg** |
| Proportional relation | **y = kx** |

Name the units and keep the ratios in the same order.
k is the rate per one unit of x.

## Percents

| | |
|---|---|
| Percent as a decimal | **p% = p / 100** |
| Part of a whole | **part = rate × whole** |

Use the decimal form for the rate.
Example: 15% of 80 is 0.15 × 80 = 12.

## One-step equations

| | |
|---|---|
| Undo addition | **x + 7 = 12; x = 5** |
| Undo multiplication | **4x = 20; x = 5** |
| Test an inequality | **5 > 3 is true** |

Do the same operation to both sides of an equation.
Check an answer by substituting it for x.

## Rectangular prism volume

| | |
|---|---|
| Length by width by height | **V = Lwh** |
| Base area by height | **V = Bh** |
| Example: 5 by 3 by 2 | **V = 30 units$^3$** |

B is the area of one base. Volume counts cubic units.

## Metric conversions

| | |
|---|---|
| Length | **1 m = 100 cm = 1,000 mm** |
| Distance | **1 km = 1,000 m** |
| Capacity | **1 L = 1,000 mL** |
| Mass | **1 kg = 1,000 g; 1 g = 1,000 mg** |

Use 100 centimeters per meter to change 2.4 m into 240 cm.

## Center and spread

| | |
|---|---|
| Mean | **sum / count** |
| Median | **middle of the ordered data** |
| Range | **maximum − minimum** |

For an even count, the median is the mean of the two middle values.
Example: 1, 4, 7, 8 has median 5.5.