Fraction Models (Rectangles)
Coordinate Planes
Percent Rules
Number Lines (1)
### Properties

**Addition Properties**
- Associative Property of Addition
  \[(a + b) + c = a + (b + c)\]
- Commutative Property of Addition
  \[a + b = b + a\]
- Additive Identity Property
  \[a + 0 = a\]
- Additive Inverse Property
  \[a + (-a) = 0\]

**Multiplication Properties**
- Associative Property of Multiplication
  \[(a \times b) \times c = a \times (b \times c)\]
- Commutative Property of Multiplication
  \[a \times b = b \times a\]
- Multiplicative Identity Property
  \[a \times 1 = a\]
- Multiplicative Inverse Property
  \[a \times \frac{1}{a} = 1\]
- Zero Property of Multiplication
  \[a \times 0 = 0\]

**Addition and Multiplication**
- Distributive Property of Multiplication over Addition
  \[a \times (b + c) = (a \times b) + (a \times c)\]
- Distributive Property of Multiplication over Subtraction
  \[a \times (b - c) = (a \times b) - (a \times c)\]

**Properties of Equality**
- Addition Property of Equality
  If \[a = b\], then \[a + c = b + c\].
- Multiplication Property of Equality
  If \[a = b\], then \[a \times c = b \times c\].
- Subtraction Property of Equality
  If \[a = b\], then \[a - c = b - c\].
- Division Property of Equality
  If \[a = b\] and \[c \neq 0\], then \[a \div c = b \div c\].
Balance Scale
Grid Paper
Shapes

- **circle**: 0 sides, 0 angles
- **oval**: 0 sides, 0 angles
- **triangle**: 3 sides, 3 angles
- **parallelogram**: 4 sides, 4 angles
- **square**: 4 equal sides, 4 right angles
- **rectangle**: 4 sides, 4 right angles
- **rhombus**: 4 equal sides, 4 angles
- **trapezoid**: 4 sides, 4 angles
- **pentagon**: 5 sides, 5 angles
- **hexagon**: 6 sides, 6 angles
- **octagon**: 8 sides, 8 angles
Net: Square Pyramid
Net: Cone
Net: Cube
Circle Formulas

<table>
<thead>
<tr>
<th>Circle Formulas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Circle</strong></td>
</tr>
<tr>
<td>- $r$ stands for the radius</td>
</tr>
<tr>
<td>- $d$ stands for the diameter</td>
</tr>
</tbody>
</table>

**Circumference, $C$**

- $C = 2\pi r$, where $r$ stands for the radius
- $C = \pi d$, where $d$ stands for the diameter

**Area, $A$**

- $A = \pi r^2$, where $r$ stands for the radius

**Pi**

- Pi, or $\pi$, can be approximated as 3.14 or $\frac{22}{7}$.
- However, it is not equal to those values.
- It is a decimal with digits that never end and do not form a repeating pattern:
- $3.14159265...$
Concentric Circles

Scale: 1 unit = 1 cm
## Area Formulas

### Formulas for Area, $A$

<table>
<thead>
<tr>
<th>Shape</th>
<th>Formula</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td>$A = \frac{1}{2} bh,$</td>
<td>$b$ stands for the length of the base and $h$ stands for the height</td>
</tr>
<tr>
<td>Rectangle</td>
<td>$A = lw,$</td>
<td>$l$ stands for the length and $w$ stands for the width</td>
</tr>
<tr>
<td>Square</td>
<td>$A = s^2,$</td>
<td>$s$ stands for the length of a side</td>
</tr>
<tr>
<td>Parallelogram</td>
<td>$A = bh,$</td>
<td>$b$ stands for the length of the base and $h$ stands for the height</td>
</tr>
<tr>
<td>Trapezoid</td>
<td>$A = \frac{1}{2}(b_1 + b_2)h,$</td>
<td>$b_1$ and $b_2$ stand for the lengths of the bases and $h$ stands for the height</td>
</tr>
</tbody>
</table>
Net: Rectangular Prism (1)
Net: Rectangular Prism (2)
Net: Triangular Prism
Volume Formulas

### Formulas for Volume, \( V \)

**Volume of a Prism**

\[
V = Bh,
\]

where \( B \) is the area of the base of the prism and \( h \) is the height of the prism

**Rectangular Prism**

\[
V = Bh
\]

\[
V = lwh,
\]

where \( l \) is the length, \( w \) is the width, and \( h \) is the height

**Cube**

\[
V = Bh
\]

\[
V = e^3,
\]

where \( e \) is the length of an edge

**Triangular Prism**

\[
V = Bh
\]

**Trapezoidal Prism**

\[
V = Bh
\]

**Pentagonal Prism**

\[
V = Bh
\]
Number Lines (2)
Number Cube

1 2 3 4 5 6
Spinner

Directions:
- Label the spinner.
- Place a paper clip and pencil point on the center.
- Flick paper clip with your finger to spin.