# Sales TAX


*Discount = (Reg. price) X (%Discount)
(249) X (.305) = $75.95

*Sale Price=(Reg. price) – ($Discount.)
$249.00 - $75.95 = $173.05

→TAX = (Sale Price) X (%tax)
$173.05 X (0.0875) = $15.14

→Total Price= Sale price + TAX
$173.05+ $15.14 = $188.19

# Commission

**"How many TV's will Jesse have to sell if he needs to make $1,000.00?"**


$\frac{3.5}{100} = \frac{1{,}000}{x} \rightarrow \frac{\$100{,}000}{3.5} = \frac{3.5x}{3.5} \rightarrow = x = \$28571.43$

$28571.43 ÷ $799 = 35.8

He will have to sell 36 TV's to make $1,000.

**Base Salary =** is $$ *added* to commission
*When a Base salary is given, it is added to your commission. When it isn't, commission only pays the person.

**Commission rate =%**
**Total sales** = $total$
**Commission** = $part$
**Commission**= $(comm.rate\%)\times(total\ sales)$

# % Increase or % decrease

**Increase** – Number rises (went up↑)
**Decrease** – Number went down ↓)

**Formula:** $\frac{CHANGE\ (or\ difference)}{Original\ Number}$

→ **SUBTRACT** the larger number from the smaller number

→**DIVIDE** that number by the original number

→**CHANGE TO PERCENT.** **Move** the **DECIMAL 2** places **to the left!**

# Proportions & Rates

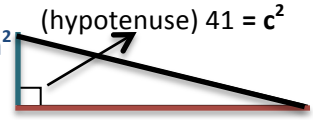
$$\frac{\%}{100} = \frac{is\ (part)}{of\ (total)}$$

Set up a PROPORTION that compares 2 different units

$$ex: \frac{\$2.25}{3\ oz.} = \frac{x}{17\ oz.}$$

# Pythagorean Theorem

When 1 Leg of a *Right Triangle* is missing, use the Pythagorean theorem to find the length of the missing leg.




$a^2 + b^2 = c^2$
$9^2 + b^2 = 41^2$
$81 + b^2 = 1681$
$-81 \quad -81$
$b^2 = 1600$
$b = \sqrt{1600}$ or (40)(40)
$b = 40$

# Scientific Notation

*****Scientific Notation Form ******

→NUMBERS LESS than 1

X 10 $^{-}$ exponents

| *Standard form* | *Scientific Notation* |
|---|---|
| 0.0 0 1 2 0 → | 1.2 X $10^{-3}$ |

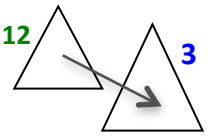
→NUMBERS GREATER than 10

X 10 $^{+}$ exponents

| *Standard form* | *Scientific Notation* |
|---|---|
| 4 5, 3 0 0, 0 0 0 → | 4.53 X $10^{+7}$ |

# Scale Factor

*(A number multiplied when scaling)*



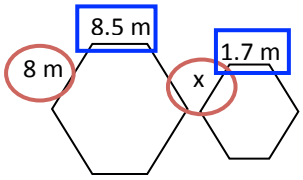

"Where **all the sides** of an **original figure** are **multiplied** by the **same number** to obtain the lengths of the corresponding sides of a **new figure**."

$$\frac{NEW}{OLD}$$

# Similar Figures

**SET UP A PROPORTION.**

To determine if the triangles below are similar, compare their corresponding sides.




$\frac{8.5}{1.7} = \frac{8}{x}$

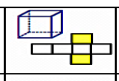
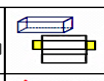
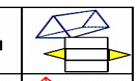
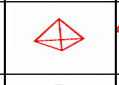
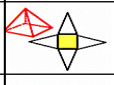
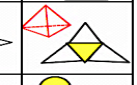
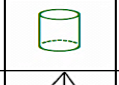
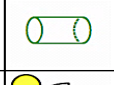
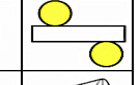
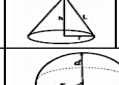
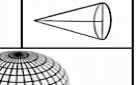
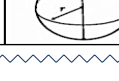
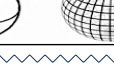
$(8.5)(x) = (8)(1.7)$

$\frac{8.5x}{8.5} = \frac{13.6}{8.5}$

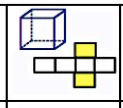
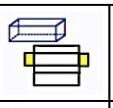
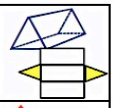
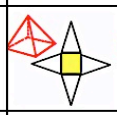
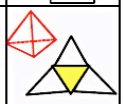
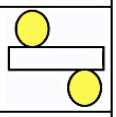
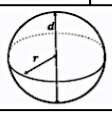
$x = 1.6$

# Surface Area

| 3D Figure | Lateral Surface Area | Total Surface Area |
|---|---|---|
| Prism | $S = Ph$ | $S = Ph + 2B$ |
| Pyramid | $S = \frac{Pl}{2}$ | $S = \frac{Pl}{2} + 2B$ |
| Cylinder | $S = 2\pi rh$ | $S = 2\pi rh + 2\pi r^2$ |

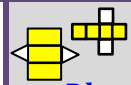
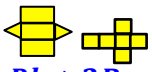
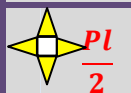
| | | | |
|---|---|---|---|
| Prism |  |  |  |
| Pyramid |  |  |  |
| Cylinder |  |  |  |
| Cone |  |  |  |
| Sphere |  |  | |

# 3-Dimentional Figures

| | | | |
|---|---|---|---|
| Prism |  |  |  |
| Pyramid |  |  |  |
| Cylinder |  |  |  |
| Cone |  |  |  |
| Sphere |  |  | |

# Surface Area

Lateral = faces – base/s
Total = Faces + base/s

| 3D Figure | Lateral Surface Area | Total Surface Area |
|---|---|---|
| Prism |  $Ph$ |  $Ph + 2B$ |
| Pyramid |  $\frac{Pl}{2}$ |  $\frac{Pl}{2}$ + B |
| Cylinder |  $2\pi rh$ |  $2\pi rh + 2\pi r^2$ |

# Area

| | | |
|---|---|---|
|  | Triangle | $\frac{bh}{2}$ |
|  | Rectangle | $Bh$ |
|  | Parallelogram | $Bh$ |
|  | Trapezoid | $\frac{(b_1+b_2)\,h}{2}$ |
|  | Circle | $\pi r\,2$ |

# Length

## Metric

★ 1 kilometer (km) = 1,000 meters (m)
km x 1000 = cm
cm ÷ 1000 = km

★ 1 meter (m) = 100 centimeters (cm)
m x 100 = cm
cm ÷ 100 = m

★1 centimeter (cm) = 10 millimeters (mm)
cm x 10 = cm
cm ÷ 10 = mm

## Customary

★1 mile (mi) = 1,760 yards (yd)
miles x 1760 = yd.
yd ÷ 1760 = miles

★ 1 yard (yd) = 3 feet (ft)
yd x 3 = ft.
ft ÷ 3 = yd

★1 foot (ft) = 12 inches (in.)
ft. x 12 = in.
in. ÷ 12 = ft.

# Volume & Capacity

## Customary

★1 gallon (gal) = 4 quarts (qt)
★1 quart (qt) = 2 pints (pt)
★1 pint (pt) = 2 cups (c)
★1 cup (c) = 8 fluid ounces (fl oz)

## Metric

★1 liter (L) = 1,000 milliliters (mL)
L. x 1000 = ml.
ml. ÷ 1000 = L.

# Weight & Mass

## Customary

★TON (T) = 2,000 pounds (lb)
★1 pound (lb) = 16 ounces (oz)

## Metric

★1 kilogram (kg) = 1,000 grams (g)
Kg. x 1000 = g.
g. ÷ 1000 = Kg.

★1 gram (g) = 1,000 milligrams (mg)
g. x 1000 = mg.
mg. ÷ 1000 = Kg.

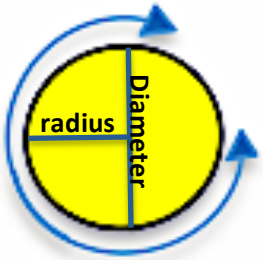
# VOLUME

| 3-D Figure | VoLuMe |
|---|---|
| Prism or Cylinder | $V = Bh$ |
| Pyramid or Cone | $V = \frac{Bh}{3}$ |
| Sphere | $V = \frac{4\pi r^3}{3}$ |

# CIRCUMFERENCE

$C = \pi\, d$
$C = 2\,\pi\, r$

$\pi = 3.14$




# Probability of Independent Events

**REPLACE!**

**Events have no effect on additional events**

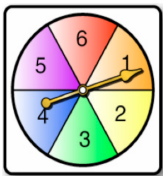
The probability of two independent events can be found by

## multiplying

**(P)1st event × (P)2nd event.**

★**EXAMPLE:**

*To find the probability of the spinner landing on an even number on the first spin, then landing on the number 2 on the second spin. (The probability does NOT change because the numbers on the spinner does NOT get removed!)*




$P1\left(\frac{3}{6}\right) \bullet P2\left(\frac{1}{6}\right) = \frac{3}{6} = \frac{1}{2}$

# Probability of Dependent Events

**DO NOT REPLACE!**

**Events AFFECT other events!**

The probability of two dependent events can be found by

## Multiplying:

**(P)1st event × (P)2nd event after the 1st event has occurred**

*The denominator (total) changes because the event is taken away (or excluded) from the total.*

★**EXAMPLE:**
A bag contains 4 blue chips, 4 red chips, and 2 green chips. A green chip is selected and ***not*** put back in. Another chip is then chosen. Find *P(two* greens)

$P(1^{st}\text{chip that's green}) = \frac{2\ \textit{green chips}}{10\ \textit{total chips}}$

$P(2^{nd}\text{ chip that's green}) = \frac{1\ \textit{green chip}}{9\ \textit{total chips}}$

$P(\text{ two greens}) = \frac{2}{10} \text{ x } \frac{1}{9} = \frac{2}{90} = \frac{1}{45}$