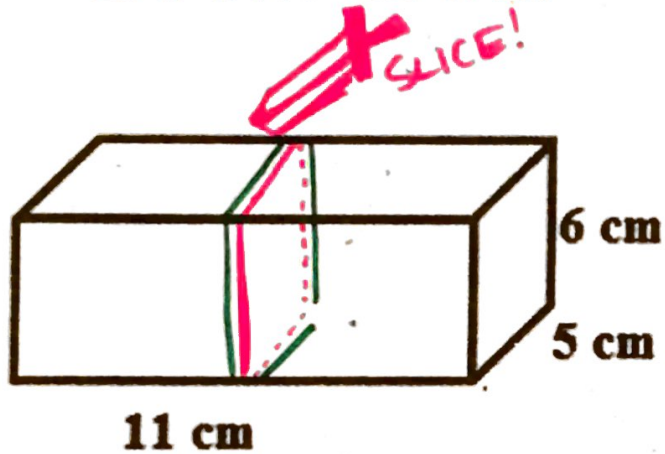


EXAMPLE #1:



- a. If the rectangular prism shown below was sliced vertically (perpendicular to the base), what shape would BEST describe the resulting two-dimensional shape?



- b. Find the volume.

$$11 \cdot 5 \cdot 6 = 330 \text{ cm}^3$$

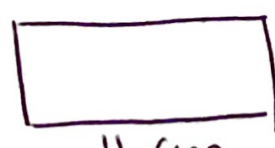
Volume is 330 cm^3

- c. Find the surface area.

What sides match?

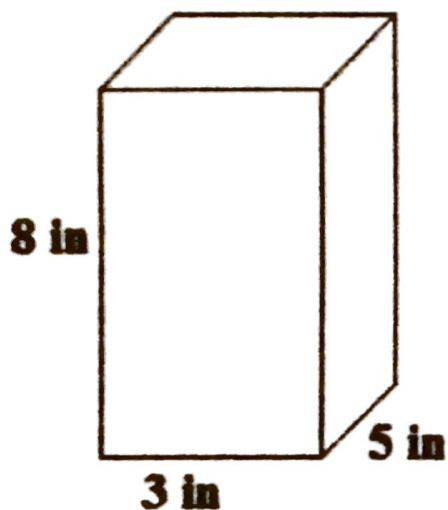
Top & Bottom  5 $5 \cdot 11 \cdot 2 = 110$

Sides  6 cm
5 cm $5 \cdot 6 \cdot 2 = 60$

Front/Back  6 cm
11 cm $11 \cdot 6 \cdot 2 = 132$

Total:
 302 cm^2

Question #1:



- a. If the right rectangular prism shown below was sliced horizontally (parallel to the base), what shape would BEST describe the resulting two-dimensional shape?

a rectangle

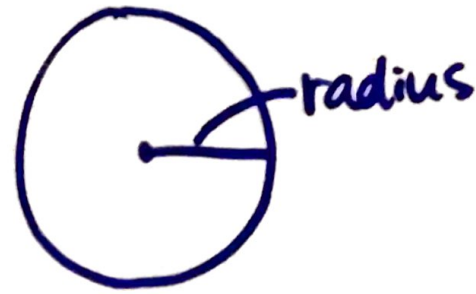
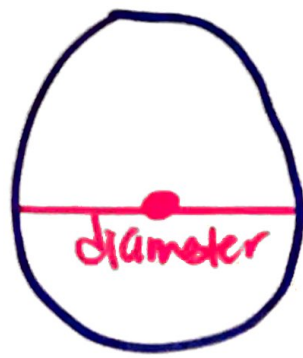


- b. Find the volume.

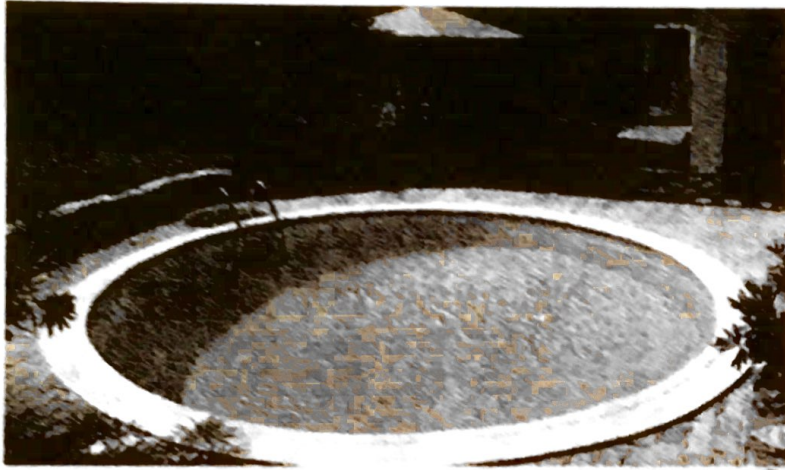
$$120 \text{ in}^3$$

- c. Find the surface area.

$$158 \text{ in}^2$$



EXAMPLE #2: Carlos is putting a circle pool in his backyard. The pool has a radius of 8 feet.



- a. Find the area of the pool.

$$A = \pi \cdot r^2$$

$$\pi \cdot 8^2 = 64\pi = \boxed{201.6 \text{ ft}^2}$$

- b. Find the circumference of the pool.

$$C = 2 \cdot \pi \cdot r$$

$$2 \cdot \pi \cdot 8 = 16\pi = \boxed{50.3 \text{ feet}}$$

* Circumference is the distance Around the pool.

Question #2:

Kevin is planting vegetables in his garden. The garden is in the shape of a circle with a diameter of 14 feet.



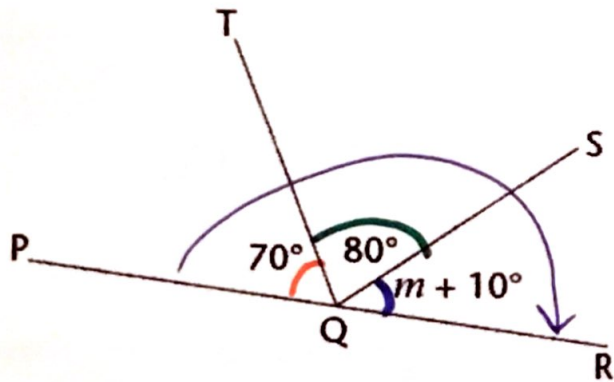
- a. Find the area of the garden.

$$153.9 \text{ feet}^2$$

- b. Find the circumference of the garden.

$$43.98 \text{ feet}$$

EXAMPLE #3: (Name the angle relationship AND solve for the variable)



Supplementary = Adds to 180°
 (all along a straight line.
 Half of a circle)

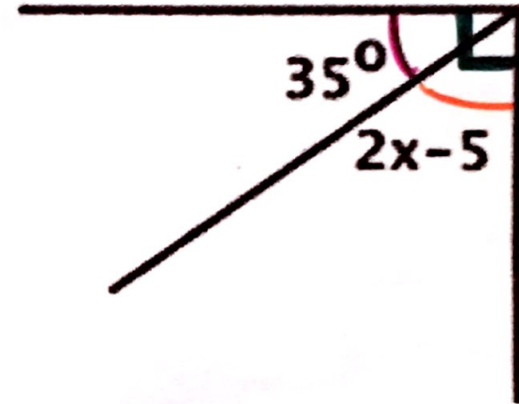
$$\underline{70} + \underline{80} + \underline{m+10} = 180$$

$$\underline{70+80} + m + 10 = 180$$

$$m + 160 = 180$$

$$\begin{array}{r} -160 \quad -160 \\ \hline \end{array}$$

$$\boxed{m=20}$$



Complementary
 Angles add to 90°

$$\underline{35} + \underline{2x-5} = 90$$

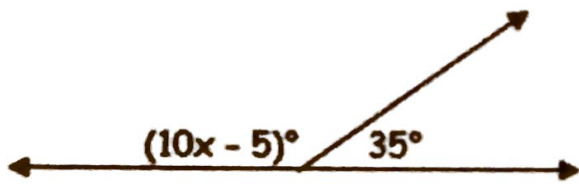
$$2x + 30 = 90$$

$$\begin{array}{r} -30 \quad -30 \\ \hline \end{array}$$

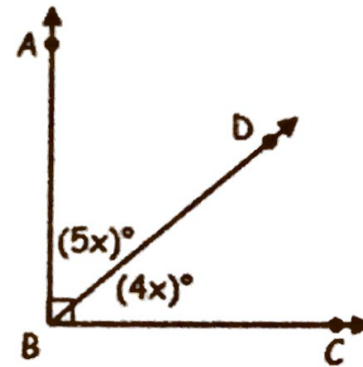
$$\frac{2x=60}{2} \quad \frac{60}{2}$$

$$\boxed{x=30}$$

Question #3: (Name the angle AND solve for the variable)

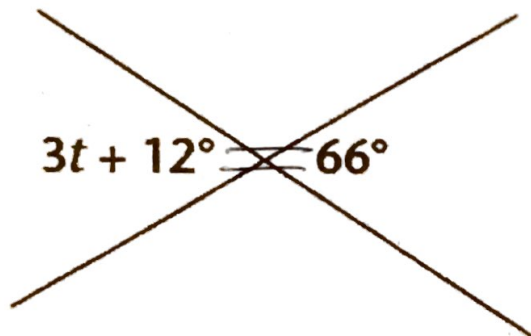


- supplementary
- $x = 15$



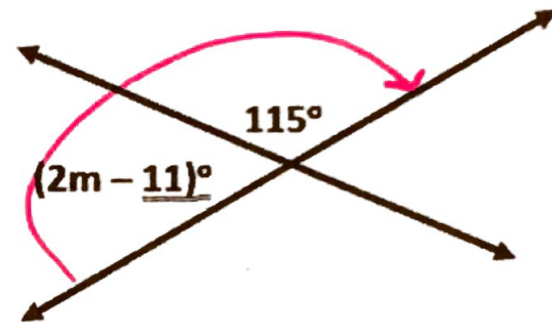
- complementary
- $x = 10$

EXAMPLE #4: (Name the angle relationship AND solve for the variable)



Vertical angles
(across from each other)

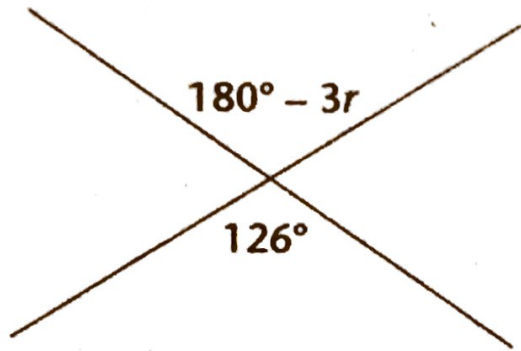
$$\begin{array}{r} 3t + 12 = 66 \\ -12 \quad -12 \\ \hline 3t = 54 \\ \underline{\quad} \\ t = 18 \end{array}$$



Supplementary

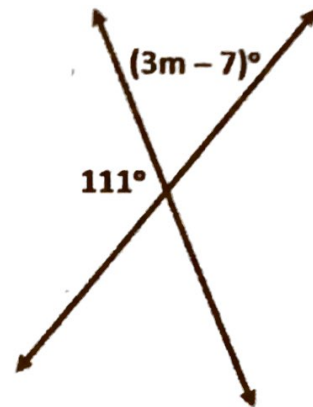
$$\begin{array}{r} 2m - 11 + 115 = 180 \\ \hline 2m + 104 = 180 \\ -104 \quad -104 \\ \hline 2m = 76 \\ \underline{\quad} \\ m = 38 \end{array}$$

Question #4: (Name the angle AND solve for the variable)



• vertical

• $x = 18$



• supplementary

• $m = 25.3$

EXAMPLE #5:

What is the formula for a trapezoid?

$$A = \frac{(\text{base}_1 + \text{base}_2) \cdot \text{height}}{2}$$

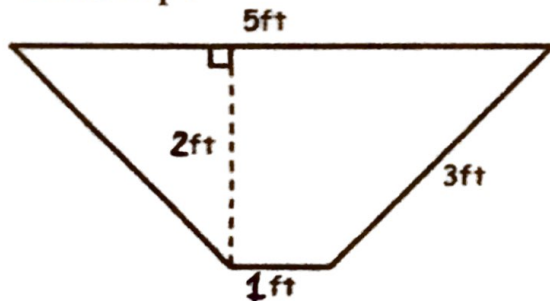
What is the difference between surface area of a 3-D object and the volume of a 3-D object?

Surface Area is how much material you need to build the box.
Area of each side added up. (units²)

Volume is how much space it takes up.
Filling up the box.
(units³)

Question #5:

- a. Jason is building a desk for his bedroom. He wants the desk to fit in the corner of his room and decides to go with a trapezoid design. If Jason uses the dimensions shown in the picture below, how many square feet of plywood will he need to build the desk top?



$$A = 6 \text{ feet}^2 \\ \text{of plywood}$$

- b. Natalie recently bought a jewelry box, but she wants to re-cover the box with a more colorful fabric. If the jewelry box is a cube with sides 8 cm long, how much fabric will Natalie need in order to cover all sides of the box?

$$384 \text{ cm}^2 \\ \text{of fabric}$$



Simple Interest
Formula

$$I = P \cdot r \cdot t$$

Principal \$
what you start with

time in
years

Interest Rate
% change to decimal ↺

EXAMPLE #6:

- a. A local bank is advertising that if you put 10,000 in a savings account and leave it there for a year, it will earn \$342 in interest at the end of the year. What interest rate/percent is the bank offering?

$$I = P \cdot r \cdot t$$

$$342 = 10,000 \cdot r \cdot 1 \quad \text{multiply}$$

$$\frac{342}{10,000} = \frac{10,000 \cdot r}{10,000}$$

$$r = \frac{342}{10,000}$$

$$r = 0.0342$$

Answer!

$$r = 3.42\% \text{ interest rate}$$

- a. How much simple interest is earned if Sarah borrows \$180 at 4.5% annually for 1 1/4 years?

$$I = P \cdot r \cdot t$$

$$I = 180 \cdot .045 \cdot 1\frac{1}{4}$$

multiply

$$I = \$10.13$$

Question #6:

a. How long will Lucy have to wait before for \$2500 invested at 6% earns \$600 in simple interest?

4 years

b. You borrow \$150 dollars from your parents. They give you 2 years to pay them back and they charge a 3% simple interest. How much money will you pay in interest by the end of the 2 years? \$9

c. Cameron borrowed \$780 for 4 years and had to pay back \$951.60 in simple interest. What percent of interest was he charged?

30.5% interest

EXAMPLE #7: PERCENT PROPORTION

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

a. 23% of what number is 74?

$$\frac{74}{x} = \frac{23\%}{100}$$

$$\frac{7400}{23} = \frac{23x}{23}$$

$$321.739... = x$$

$$x = 321.74$$

b. 89 is what percent of 140?

$$\frac{89}{140} = \frac{x}{100}$$

$$\frac{140x}{140} = \frac{8900}{140}$$

$$x = 63.57\%$$

Question #7:

a. 97 is 54% of what number?

$$x \approx 179.6$$

b. What number is 43% of 220?

$$x = 94.6$$

c. 68 is what percent of 79?

$$x \approx 86.1\%$$

EXAMPLE #8: PERCENT PROPORTION

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

- a. Sam buys a slice of pizza for \$2.49. He pays 5.4% tax and leaves a 15% tip. What is the total cost for the pizza after tax and a tip?

Tax: $\frac{x}{2.49} = \frac{5.4\%}{100}$
 $x = \$0.13$ tax

Tip: $\frac{x}{2.62} = \frac{15\%}{100}$
 $x = \$0.39$

Total: \$3.01

- b. A radio is on sale for \$36. This is 90% of the original price. What is the original price of the radio?

$\frac{36}{\text{original price } x} = \frac{90\%}{100}$

$$\frac{90}{100}x = \frac{3600}{90}$$

$$x = 40$$

The original price of the radio was \$40.00

Question #8:

- a. A laptop costs \$899. There is a discount for 15% off and there is 6.85% tax. How much will you pay for the laptop with the discount and tax?

\$816.49

- b. A Nintendo Switch is on sale for \$254.15 this is 85% of the original price. What is the original price?

~~\$299~~
\$299

EXAMPLE #9: $\overset{11}{13}, \overset{11}{18}, \overset{12}{11}, \overset{13}{14}, \overset{14}{18}, \overset{15}{12}, \overset{18}{18}, \overset{18}{11}, \overset{18}{15}$

(Average)
a. What is the mean?

Add them all up

then \div by how many #'s there are.

$$\frac{130}{9} = \boxed{14.4}$$

b. What is the median?

Middle #

$\boxed{14}$

order first!

c. What is the mode?

that shows

up most.

$\boxed{18}$

Question #9: 12, 4, 15, 4, 8, 12, 5, 7, 1, 22

- a. What is the mean? 9
- b. What is the median? 7.5
- c. What is the mode? 4 & 12

EXAMPLE #10:

$$5 \cdot 7 \cdot \frac{1}{3} + \frac{2}{7} \cdot 5 \cdot 3 + \frac{1}{5} \cdot 7 \cdot 3$$

$$\frac{35}{105} + \frac{30}{105} + \frac{21}{105} = \boxed{\frac{86}{105}}$$

Alyssa ate $\frac{1}{3}$ of a cake, while Jessica ate $\frac{2}{7}$ of a cake and Joan ate $\frac{1}{5}$ of a cake.

What percent of the cake has been eaten?

① Add all fractions first!

② By hand: Need common denominators!

③ Turn into a %

↳ or add on your calculator

$$\frac{86}{105} = 0.819\dots$$

about 81.9%
of the cake
was eaten

A recipe called for $\frac{5}{12}$ cup of chopped walnuts, $\frac{1}{4}$ cup of diced walnuts, as well as, $\frac{1}{10}$ cup of mined walnuts. In total, how many cups of walnuts did the recipe call for?

$$5 \cdot \frac{5}{12} + \frac{1}{4} \cdot 15 + \frac{1}{10} \cdot 6$$

Common denominator: 60

$$\frac{25}{60} + \frac{15}{60} + \frac{6}{60} = \frac{46}{60} \stackrel{\div 2}{\text{reduce!}}$$

The recipe calls for
 $\frac{23}{30}$ cups of walnuts.

Question #10:

Sarah needs to make a cake and some cookies. The cake requires $\frac{3}{8}$ cup of sugar and the cookies require $\frac{3}{5}$ cup of sugar. Sarah has $\frac{15}{16}$ cups of sugar. Does she have enough sugar?

NO. She is $\frac{3}{80}$ short.

At a company party, $\frac{1}{2}$ in attendance are employees. Employees' spouses are $\frac{1}{3}$ of the attendance. What is the percentage of the people in attendance who are not employees or employee spouses?

16.6% are Not employees or their spouses

EXAMPLE #11:

Who drove the fastest? Explain.

| Traveling | |
|-----------|----------------------|
| Person | Travel log |
| ★ Savanna | 573 miles in 7 hours |
| ★ Tiffany | 393 miles in 5 hours |
| ★ McKay | 248 miles in 3 hours |
| ★ Anna | 678 miles in 9 hours |

McKay drove the fastest.
He went the highest amount
of miles each hour.
(Fastest speed.)

$$\text{Savanna: } \frac{573 \text{ mi}}{7 \text{ hr}} = 573 \div 7 = \boxed{81.86 \text{ mph}}$$

$$\text{Tiffany: } \frac{393 \text{ mi}}{5 \text{ hr}} = 393 \div 5 = \boxed{78.6 \text{ mph}}$$

$$\text{McKay: } \frac{248 \text{ mi}}{3 \text{ hr}} = 248 \div 3 = \boxed{82.6 \text{ mph}}$$

$$\text{Anna: } \frac{678 \text{ mi}}{9 \text{ hr}} = 678 \div 9 = \boxed{75.3 \text{ mph}}$$

Question #11:

Find the best price per ounce.

| Cereal Prices | |
|-----------------------|------------------------|
| Brand | Price |
| Cinnamon Toast Crunch | \$2.98 for 12.2 ounces |
| Lucky Charms | \$3.90 for 15 ounces |
| ★ Corn Pops | \$1.90 for 10 ounces |
| Froot Loops | \$2.99 for 13 ounces |

★ Best price per oz:

\$0.19
~~\$0.19~~
per oz