

Lincoln-West School of

GLOBAL STUDIES

SPRING BREAK 2020

OST Warm Up

GEOMETRY

Handwritten mathematical notes in purple ink:

- $\sqrt{2x+1} + \sin x = 5$
- Coordinate plane with a circle and axes.
- $\sin x$ with arrows pointing to the circle.
- $\pi = 3.141592$
- Wavy line.
- $\sin x + x$
- $\cos y = e^{x^2} = e^{2x+3}$
- $x^{1/2} = \frac{-5 \pm \sqrt{5}}{2a}$
- $x^2 = 2x+3$
- $\int \sin' dx = \int (-1) dx = -x + C$
- $y'' + 4y = \frac{1}{\sin^2 x}$
- $A(1,2)$
- $\sin(x - \dots)$

MATH OST INCENTIVES

Lincoln-West School of



LEVEL 5 - SKYZONE

Score a 2 or higher on your MATH OST

LEVEL 4 - MOVIE

EVERYONE in your TESTING GROUP shows REAL work for at least 10 problems

LEVEL 3 - CHIPS

EVERYONE in your TESTING GROUP writes

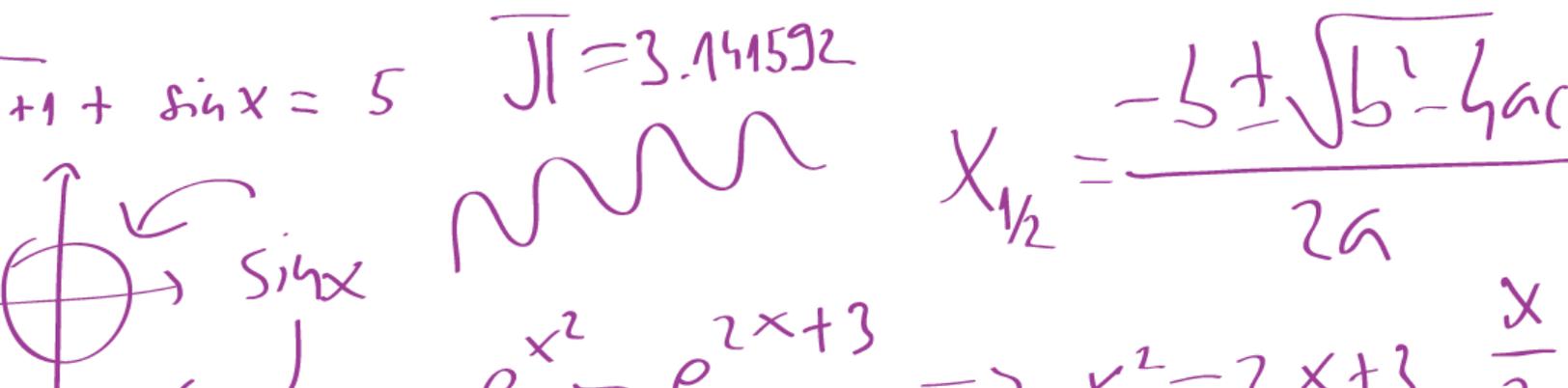
$Y=MX+B$ on their scrap paper

LEVEL 2 - CANDY

Write $Y=MX+B$ on your scrap paper

LEVEL 1 - MINT

Arrive to your testing room ON TIME



Ohio State Test Reference Sheet High School

1 foot = 12 inches

1 yard = 3 feet

1 mile = 1,760 yards

1 mile = 5,280 feet

1 mile \approx 1.609 kilometers

1 inch = 2.54 centimeters

1 kilometer \approx 0.62 mile

1 meter \approx 39.37 inches

1 pound = 16 ounces

1 pound \approx 0.454 kilograms

1 kilogram \approx 2.2 pounds

1 cup = 8 fluid ounces

1 pint = 2 cups

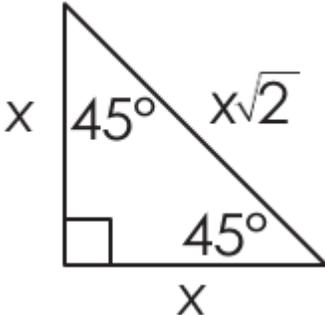
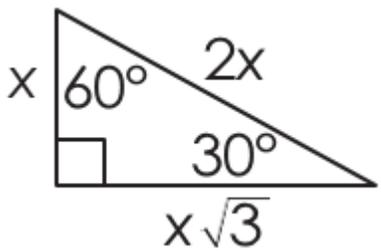
1 quart = 2 pints

1 gallon = 4 quarts

1 gallon \approx 3.785 liters

1 liter \approx 0.264 gallons

1 liter = 1000 cubic centimeters

| Trigonometry | | |
|--|---|---|
| $\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$ |  |  |
| $\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$ | | |
| $\tan A = \frac{\text{opposite}}{\text{adjacent}}$ | | |

| Key | | | |
|-------------------|---------------------------|---------------------|---------------------|
| $b = \text{base}$ | $B = \text{area of base}$ | $h = \text{height}$ | $r = \text{radius}$ |

| | |
|----------------------|--------------------------------|
| Triangle | $A = \frac{1}{2} b h$ |
| Parallelogram | $A = b h$ |
| Circle | $C = 2 \pi r$ $A = \pi r^2$ |

| | |
|-----------------------|-----------------------------|
| General Prisms | $V = B h$ |
| Cylinder | $V = \pi r^2 h$ |
| Sphere | $V = \frac{4}{3} \pi r^3$ |
| Cone | $V = \frac{1}{3} \pi r^2 h$ |
| Pyramid | $V = \frac{1}{3} B h$ |

| | |
|--------------------------|--|
| Distance Formula | $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ |
| Quadratic Formula | $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ |
| Addition Rule | $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ |

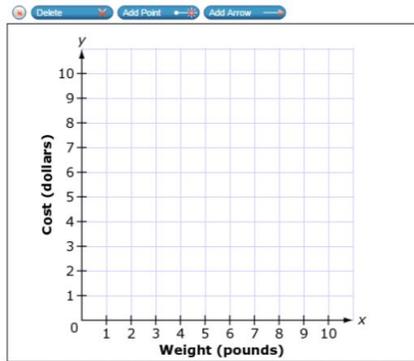
Nadya has a cylindrical container that stores sugar. The radius of the container's base is 5 centimeters, and the height of the container is 18 centimeters.

What is the volume of Nadya's container, rounded to the nearest cubic centimeter?

cubic centimeters

A grocery store sells 2 pounds of apples for \$4.

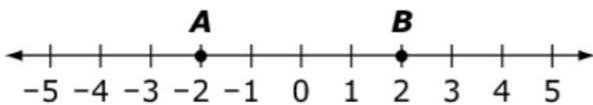
Use the Add Arrow tool to graph the relationship between the cost of apples and their weight.



The circumference of a circle is 18.84 inches.

What is the diameter of the circle, to the nearest inch?

Two points, A and B , are labeled on the number line.



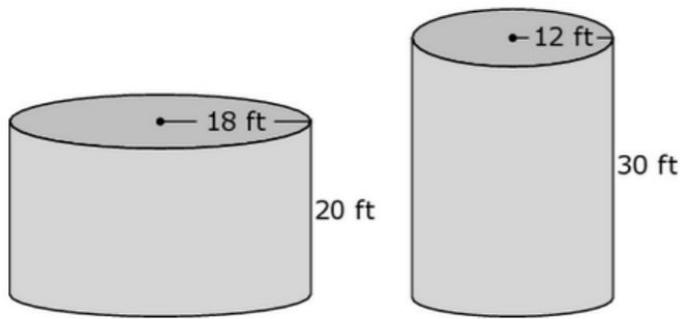
What is the value of $A + B$?

Chris wants to determine the most popular sport of the students at his school.

Which sample should he survey?

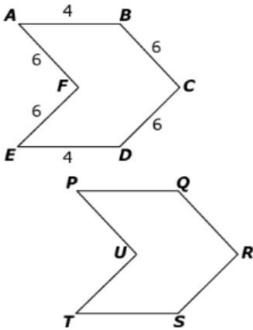
- (A) a group of his friends
- (B) a group of students on the soccer team
- (C) a group of randomly selected students from each grade at his school
- (D) a group of randomly selected students from each sports team at his school

A farm has two cylindrical silos for storing grain as shown.



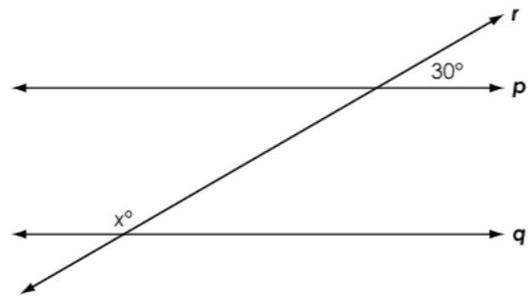
How much greater is the volume, in cubic feet, of the larger silo than the smaller silo?

A company created a logo using two hexagons as shown. Hexagon $PQRSTU$ is a translation of hexagon $ABCDEF$.



What is the length of line segment TS ?

Parallel lines p and q are intersected by transversal r , as shown.



What is the value of x ?

Tim is clearing brush from a large piece of land. The table shows how many acres he has cleared over time.

Brush Clearing

| Acres Cleared | Days |
|----------------|------|
| $\frac{2}{3}$ | 2 |
| $1\frac{2}{3}$ | 5 |
| $2\frac{1}{3}$ | 7 |

How many days does it take Tim to clear 1 acre?

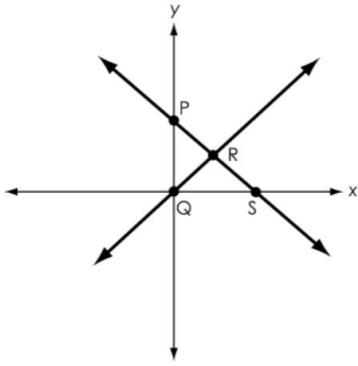
An equation is shown.

$$6x - 3 = 3x + 12$$

What is the solution to the equation?

$x =$

The graph of a system of two linear equations is shown.

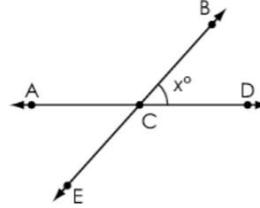


Which point represents the solution to the system?

- (A) P
- (B) Q
- (C) R
- (D) S

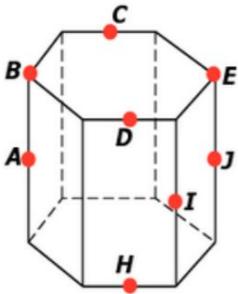
What is the value of $\frac{2}{3}(-9 + 3)$?

Lines AD and BE intersect at point C, as shown.



Create an expression that represents the measure of angle DCE in terms of x .

A hexagonal prism is shown.



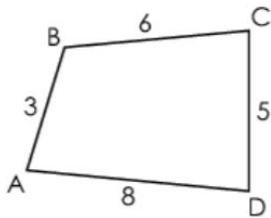
Select the shape that is formed by each cross section.

| | Hexagon | Rectangle |
|---|--------------------------|--------------------------|
| Cross section through points C, D, and H | <input type="checkbox"/> | <input type="checkbox"/> |
| Cross section through points A, I, and J | <input type="checkbox"/> | <input type="checkbox"/> |
| Cross section through points A, B, E, and J | <input type="checkbox"/> | <input type="checkbox"/> |

A factory produces 80,000 candies each day. They produce equal quantities of four flavors: cherry, lemon, orange, and strawberry. The candies are mixed together during packaging.

What is the probability that a randomly selected candy is orange?

Quadrilateral ABCD is shown.

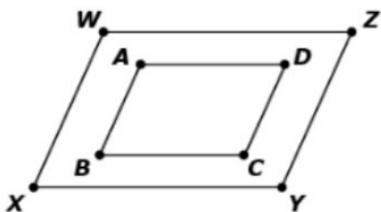


ABCD is translated to create quadrilateral EFGH.

What is the length, in units, of side EH?

units

Parallelograms ABCD and WXYZ are shown.



What transformation is used to show that the parallelograms are similar?

- (A) dilation
- (B) reflection
- (C) rotation
- (D) translation

A bag contains 25 cookies. There are 15 chocolate chip cookies, 7 peanut butter cookies, and the rest are oatmeal raisin cookies.

What is the probability of randomly choosing a chocolate chip or peanut butter cookie from the bag?

A teacher selects two different numbers, p and q , and states that $p + q = 0$.

Which statement could be true about these two numbers?

- (A) Both numbers are positive.
- (B) Both numbers are negative.
- (C) One number is zero and the other is positive.
- (D) One number is positive and the other is negative.

Create an expression equivalent to $2(3x - 1) - 3x + 4$ using the least number of terms.