PSAT#10

6

A soda company is filling bottles of soda from a tank that contains 500 gallons of soda. At most, how many 20-ounce bottles can be filled from the tank? (1 gallon = 128 ounces)

A) 25
B) 78
C) 2,560
D) 3,200

$500\text{gal} \times \frac{128\text{oz}}{\text{gal}} = \frac{64{,}000\text{oz}}{20}$

7

An advertisement states that the printing rate of a certain printer is 400 characters per second. According to the convention that 1 word consists of 5 characters, what would be the advertised printing rate, in words per minute?

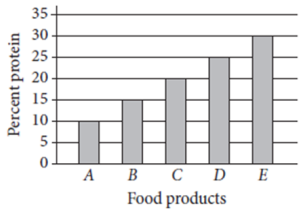
A) 2,000
B) 4,800
C) 24,000
D) 120,000

$\frac{400\text{char}}{\text{sec}} \quad \frac{1\text{word}}{5\text{char}}$

$80\ \frac{\text{words}}{\text{sec}} \times 60$

17

Percent Protein in Five Food Products



The graph above shows the amount of protein supplied by five different food products, *A*, *B*, *C*, *D*, and *E*, as a percentage of their total weights. The costs of 10 grams of products *A*, *B*, *C*, *D*, and *E* are \$2.00, \$2.20, \$2.50, \$4.00, and \$5.00, respectively. Which of the five food products supplies the most protein per dollar?

A) *A*
B) *B*
C) *C*
D) *E*

Learning Goal: Today I will learnabout tangent lines.

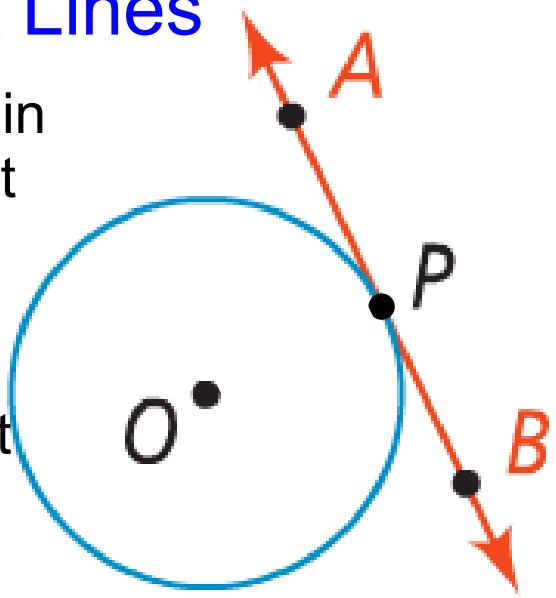
Success Criteria: I am able to determine if a line is a tangent and use its properties to problem solve.

12-1 Tangent Lines

*Tangent Lines

Tangent to a circle - line in the plane of the **circle** that touches a circle at exactly **one point** (P).

Point of Tangency - point where the **tangent** and **circle** intersect.

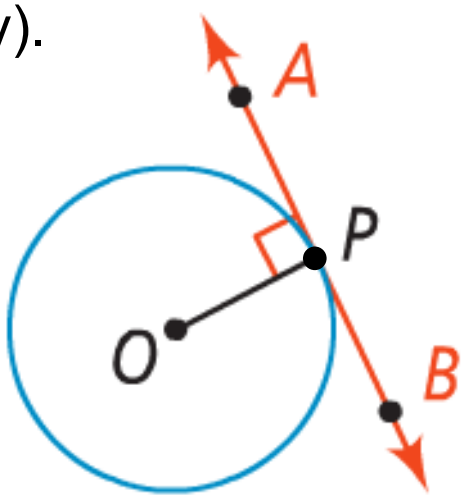


*Theorem 12-1 and 12-2

If a line is tangent to a circle, then it is perpendicular to the radius at the point of intersection (tangency).

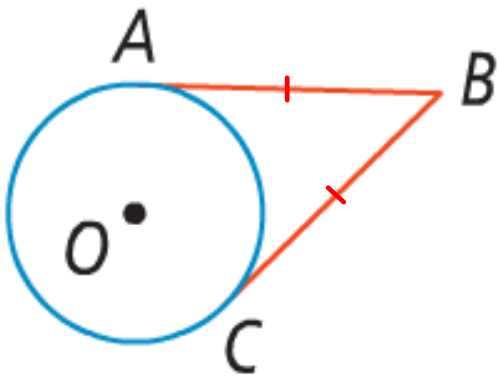
OR

If a line in the plane of the circle is perpendicular to a radius at its endpoint on the circle then the line is tangent to the circle.

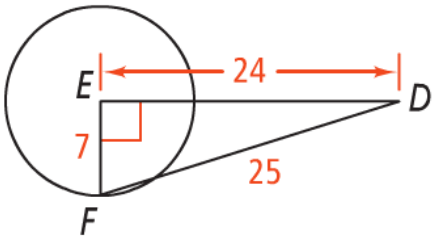


*Theorem 12-3

If 2 tangent segments share a common point outside the circle, then the segments are congruent. $\overline{AB} \cong \overline{BC}$

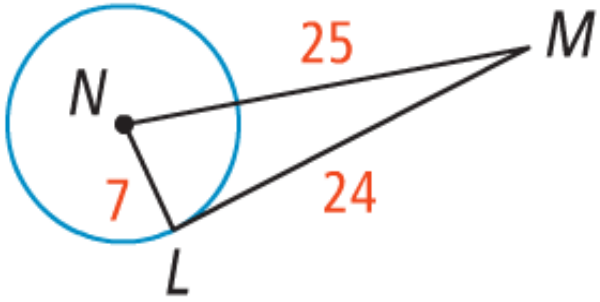


5. Error Analysis A classmate insists that $\overline{DF}$ is a tangent to $\odot E$. Explain how to show that your classmate is wrong.



Tangent Lines

Is $\overline{ML}$ tangent to circle N?



Pythagorean Thm

$a^2+b^2=c^2$

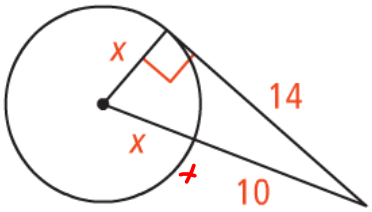
$7^2+24^2 \stackrel{?}{=} 25^2$

$49+576 \stackrel{?}{=} 625$

$625=625$

right $\triangle$, radius is $\perp$, so it's tangent!

Find the value of x.



$a^2+b^2=c^2$

$x^2+14^2=(x+10)^2$

$x^2+196=(x+10)(x+10)$

$x^2+196=x^2+10x+10x+100$

$x^2+196=x^2+20x+100$

$-x^2 \quad -x^2$

$196=20x+100$

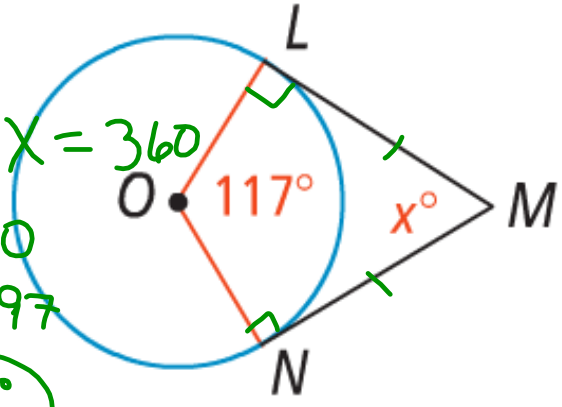
$-100 \quad -100$

$\frac{96}{20}=\frac{20x}{20}$

$4.8=x$

What is the value of x if $\overline{ML}$ and $\overline{MN}$ are tangent to circle O?

4 sides → angles add up to 360°



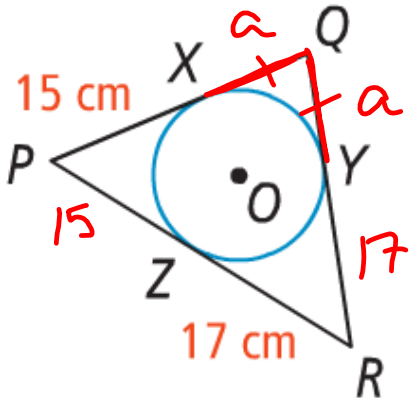
$117 + 90 + 90 + X = 360$

$297 + X = 360$

$-297 \quad -297$

$X = 63°$

$\odot O$ is inscribed in $\triangle PQR$, which has a perimeter of 88 cm. What is the length of $\overline{QY}$?



$15 + 15 + 17 + 17 + a + a = 88$

$64 + 2a = 88$

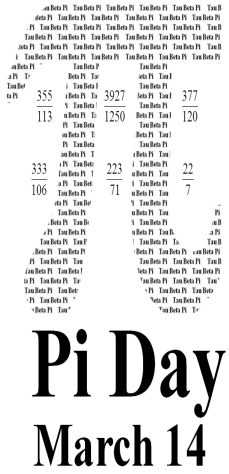
$-64 \quad -64$

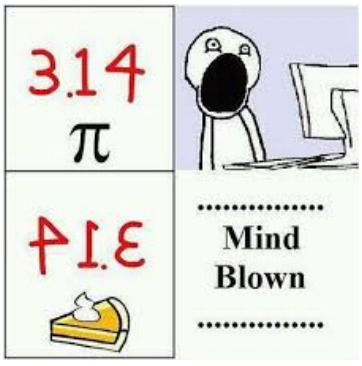
$\frac{2a}{2} = \frac{24}{2}$

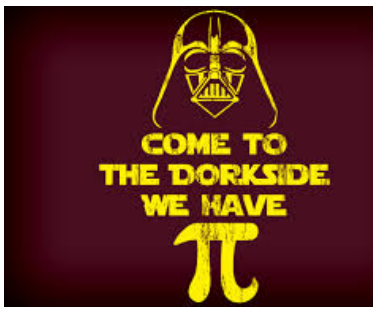
$a = 12$

Break

Happy Pi Day!!!







Share any info you researched about pi...

How is pi calculated???

Let's find out using a cookie

Happy Pi Day!!!

Cookie Calculations...

You will need:

1. paper towel
2. cookie
3. ruler (share with partner)
4. calculator

You may work with a partner of your choice

Happy Pi Day!
March 14, 2018

1. Carefully measure the circumference and diameter of your cookie.

   Circumference = _____ Diameter = _____

2. Find the ratio of the circumference to the diameter.

   $\frac{\text{circumference}}{\text{diameter}}$ = _____

3. Carefully write your measurements and ratio on the board.

4. Observe the data from the rest of the class. What do you notice about the ratio?

5. Using what you just discovered, how could you write the formula for the circumference?

Closure: Today I learned about tangent lines and their properties, discovered how pi is calculated, and practiced circle calculations