Due today: QUIZ *(absent make-ups)*

Due tomorrow:
*Geometry standards review #20-30

Due Wednesday:
*14.1 part 1
 #17-20, 21-35odd
  (put on a new sheet of paper…more problems will be added tomorrow!)

Notes: 14.1 (part 1)

Fundamental Counting Principle:

If *event 1* can occur *m* different ways and *event 2* can occur *n* different ways (after the first has occurred), then the two events can occur *m•n* ways.

→*use a "decision chart" to compute your answer!*

APPLICATIONS

17–36 ■ **Fundamental Counting Principle**   These exercises involve the Fundamental Counting Principle.

17. Ice-Cream Cones   A vendor sells ice cream from a cart on the boardwalk. He offers vanilla, chocolate, strawberry, and pistachio ice cream, served in either a waffle, sugar, or plain cone. How many different single-scoop ice-cream cones can you buy from this vendor?

$$\underset{\text{flavors}}{4} \cdot \underset{\text{cones}}{3} = \boxed{12}$$

18. Three-Letter Words How many three-letter "words" (strings of letters) can be formed by using the 26 letters of the alphabet if repetition of letters

(a) is allowed?

$$26 \cdot 26 \cdot 26 = 26^3 = 17{,}576$$

(b) is not allowed?

$$26 \cdot 25 \cdot 24 = 15{,}600$$

19. Horse Race Eight horses compete in a race. (Assume that the race does not end in a tie.)

(a) How many different orders are possible for completing the race? $8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 8!$ $\boxed{40{,}320}$

(b) In how many different ways can first, second, and third places be decided?

$$\frac{8}{1st} \cdot \frac{7}{2nd} \cdot \frac{6}{3rd} = \boxed{336}$$

20. Multiple-Choice Test A multiple-choice test has five questions with four choices for each question. In how many different ways can the test be completed? $\underline{4}\ \underline{4}\ \underline{4}\ \underline{4}\ \underline{4} = 4^5$

$= \boxed{1024}$

question #1 2 3 4 5

Circle Facts
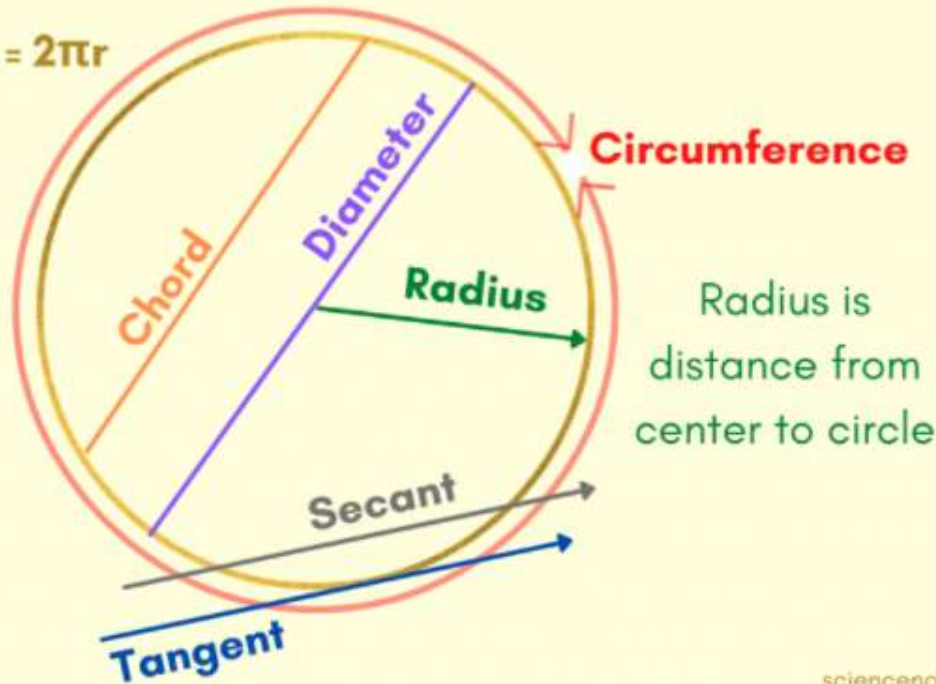
A circle is a two-dimensional shape made of points that are all the same distance from the center.

Circumference = $2\pi r$

Diameter = $2r$

Area = πr^2
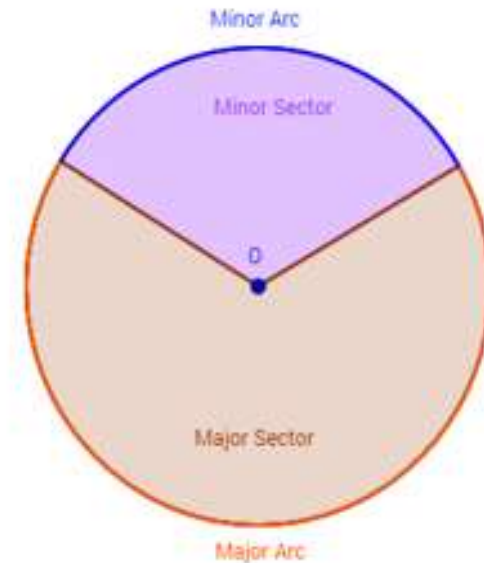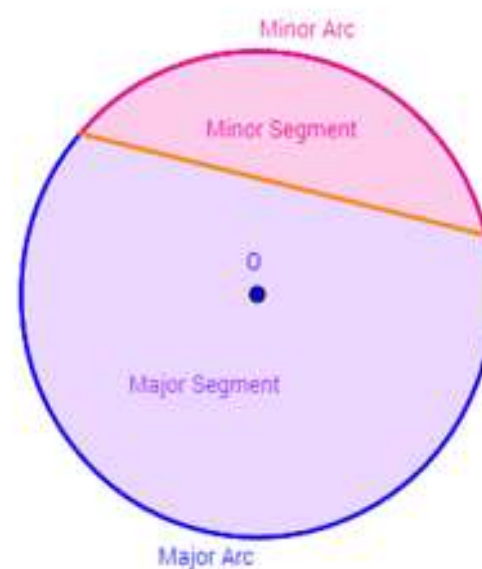
Diameter is distance from one side of circle to the other, going through the center

Chord

Diameter

Radius

Circumference

Secant

Tangent

Radius is distance from center to circle

Minor Arc

Minor Segment

O

Major Segment

Major Arc

Minor Arc

Minor Sector

O

Major Sector

Major Arc
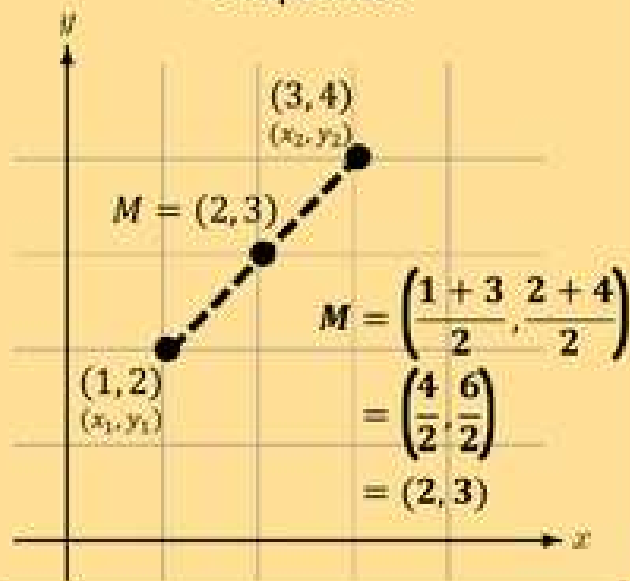
MIDPOINT

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

The midpoint is halfway between two endpoints.

$(3,4)$
(x_2, y_2)

$M = (2,3)$

$$M = \left(\frac{1+3}{2}, \frac{2+4}{2} \right)$$

$(1,2)$
(x_1, y_1)

$$= \left(\frac{4}{2}, \frac{6}{2} \right)$$

$$= (2,3)$$

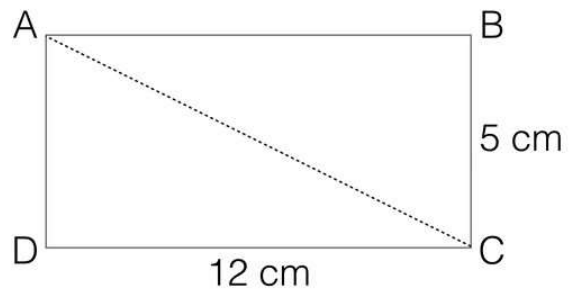# DISTANCE

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Using Pythagoras' Theorem this formula is distance between two endpoints.

$(2,4)$
(x_2, y_2)

$$d = \sqrt{(2-1)^2 + (4-1)^2}$$
$$= \sqrt{(1)^2 + (3)^2}$$
$$= \sqrt{1+9}$$
$$= \sqrt{10} \approx 3.162$$

$(1,1)$
(x_1, y_1)
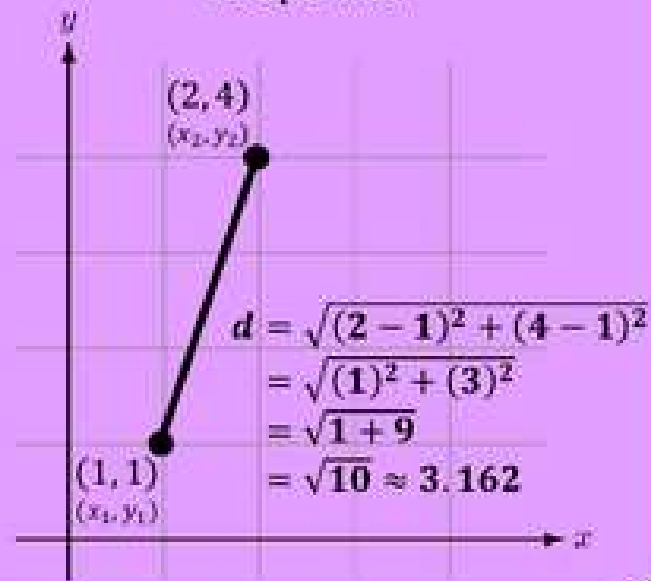
Find the length of the diagonal of this rectangle

A ─────── B

5 cm

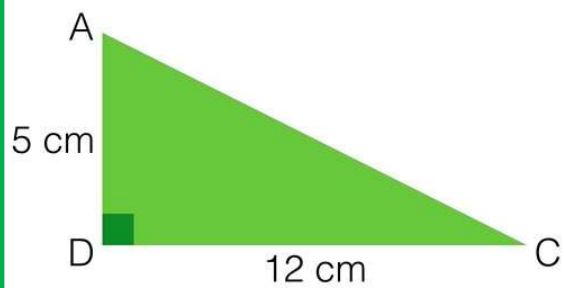D ─────── C
12 cm

A

5 cm

D ┐ ────── C
12 cm

$$AC^2 = AD^2 + CD^2$$
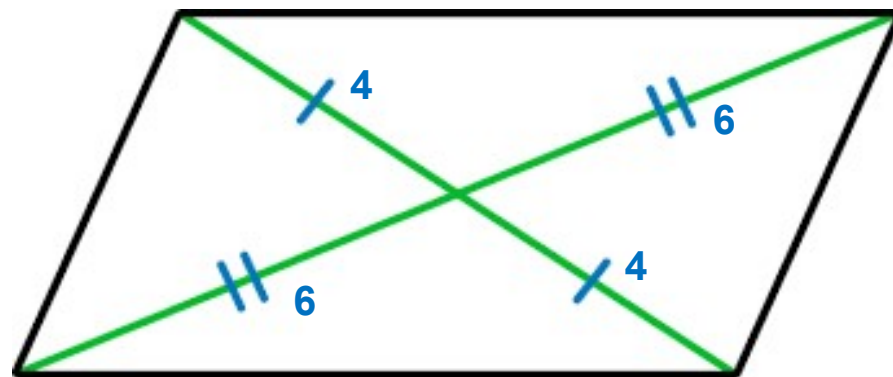
$$AC^2 = 5^2 + 12^2$$

$$AC^2 = 25 + 144$$

$$AC^2 = 169$$

Parallelogram

4

6

6

4

Check answers for geometry review:

20. B	24. B	28. B
21. A	25. C	29. D
22. C	26. B	30. A
23. C	27. C	

*Be sure to show work and/or sketch diagrams to prove your answer is correct!