

Mathematics Chart

LENGTH

Metric	Customary
1 kilometer = 1000 meters	1 mile = 1760 yards
1 meter = 100 centimeters	1 mile = 5280 feet
1 centimeter = 10 millimeters	1 yard = 3 feet
	1 foot = 12 inches

CAPACITY AND VOLUME

Metric	Customary
1 liter = 1000 milliliters	1 gallon = 4 quarts
	1 gallon = 128 ounces
	1 quart = 2 pints
	1 pint = 2 cups
	1 cup = 8 ounces

MASS AND WEIGHT

Metric	Customary
1 kilogram = 1000 grams	1 ton = 2000 pounds
1 gram = 1000 milligrams	1 pound = 16 ounces

TIME

1 year = 365 days
1 year = 12 months
1 year = 52 weeks
1 week = 7 days
1 day = 24 hours
1 hour = 60 minutes
1 minute = 60 seconds

Metric and customary rulers can be found on the separate Mathematics Chart.

Continued on the next page

Mathematics Chart

Perimeter	square	$P = 4s$
	rectangle	$P = 2l + 2w$ or $P = 2(l + w)$
Circumference	circle	$C = 2\pi r$ or $C = \pi d$
Area	square	$A = s^2$
	rectangle	$A = lw$ or $A = bh$
	triangle	$A = \frac{1}{2}bh$ or $A = \frac{bh}{2}$
	trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$ or $A = \frac{(b_1 + b_2)h}{2}$
	circle	$A = \pi r^2$
Volume	cube	$V = s^3$
	rectangular prism	$V = lwh$
Pi	π	$\pi \approx 3.14$ or $\pi \approx \frac{22}{7}$

DIRECTIONS

Read each question. Then fill in the correct answer on your answer document.

SAMPLE A

Find the greatest common factor of 12 and 18.

- A** 3
- B** 6
- C** 9

SAMPLE B

Find the perimeter of this square.



5 m

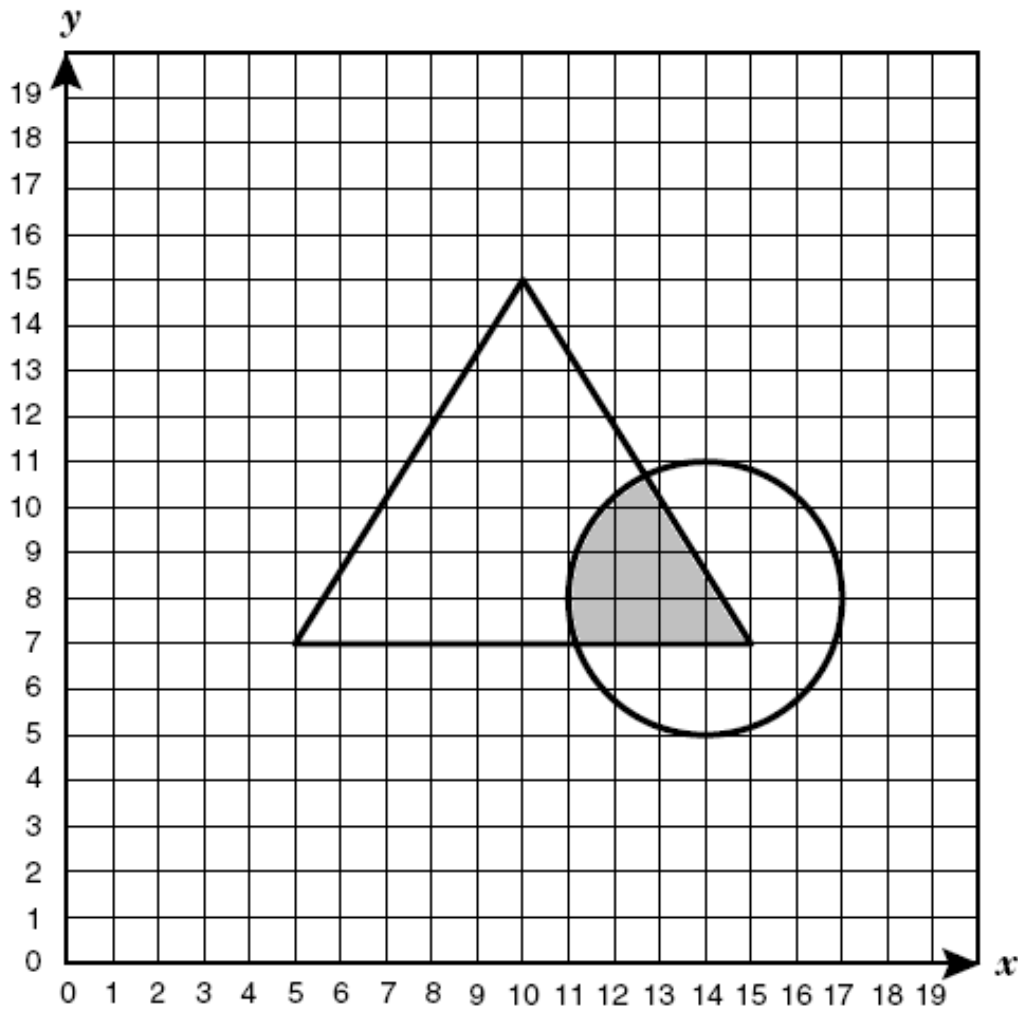
Perimeter (P)

$$P = 4s$$

- F** 20 m
- G** 35 m
- H** 25.5 m



1. Which ordered pair, (x,y) , represents a point located inside the shaded area?



- A (4, 19)
- B (8, 2)
- C (14, 8)



2. At Sandy's school there is 1 teacher for every 15 students. There are 630 students at the school. Which proportion can be used to find x , the number of teachers?

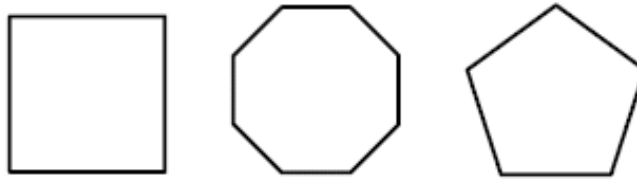
F $\frac{15}{630} = \frac{x}{30}$

G $\frac{15}{1} = \frac{x}{630}$

H $\frac{1}{15} = \frac{x}{630}$



3. Look at the shapes below.



Which statement best describes these shapes?

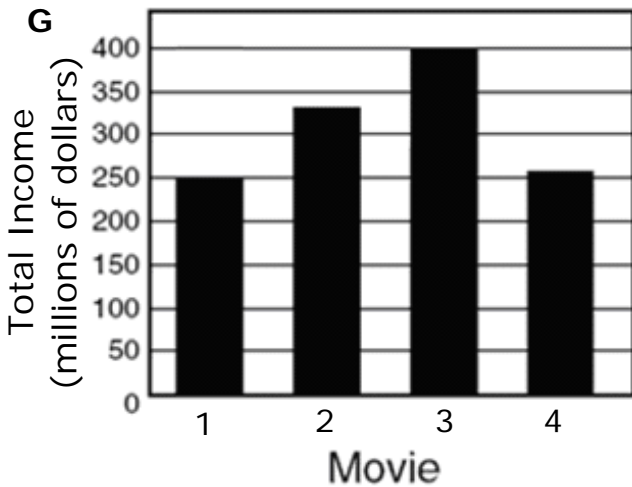
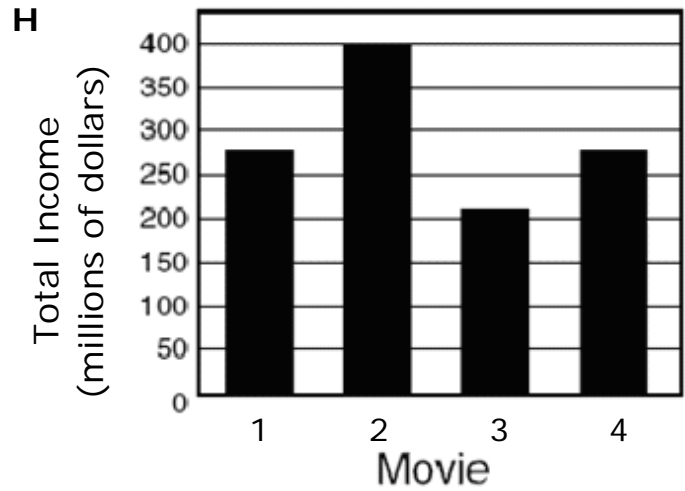
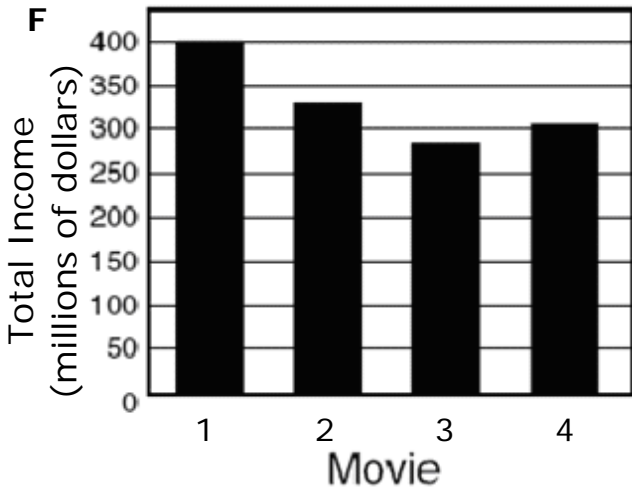
- A They all appear to be **regular polygons**
- B They all have an even number of sides.
- C They all have an even number of angles.



4. The table shows the total income for 4 movies.

Movie	Total Income (millions of dollars)
1	399.8
2	329.7
3	285.0
4	306.2

Which graph most accurately displays the information in the table?



5. There are 21 buses. If 47 students get on each bus, about how many students are there altogether?

- A 50
- B 245
- C 1,000



6. A car travels an average of 22 miles per gallon of gasoline. The gas tank holds 12 gallons. How would you find the number of miles a car can be driven on 1 tank of gas?
- F** Add the car's average mileage in miles per gallon to the number of gallons the tank can hold
- G** Subtract the number of gallons the tank can hold from the car's average mileage in miles per gallon
- H** Multiply the car's average mileage in miles per gallon by the number of gallons the tank can hold



7. There are 3 friends.

- Jade is 3 years older than Steven.
- Steven is 5 years younger than Andrew.
- Andrew is 15 years old.

Which table could be used to find Jade's age?

A Ages

Name	Age (years)
Jade	3
Steven	5
Andrew	15

B Ages

Name	Age (years)
Jade	$15 - 5 + 3$
Steven	$15 - 5$
Andrew	15

C Ages

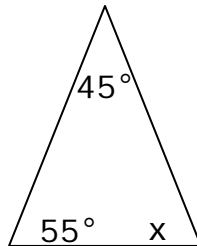
Name	Age (years)
Jade	7
Steven	8
Andrew	15



8. Joe's horse eats 2 bales of hay every 5 days. How many bales of hay does Joe's horse eat in 30 days?

- F** 60
G 12
H 32
-

9. The triangle below has angles measuring 45° and 55° . What is the measure of the triangle's third angle?



- A** 80°
B 100°
C 260°



10. A Band performed concerts from 1997 to 2001. The table shows the number of concerts the band performed each year.

Band Performances	
Year	Number of Concerts
1997	162
1998	180
1999	180
2000	168
2001	172

What is the median of the number of concerts?

F 168

G 172

H 180

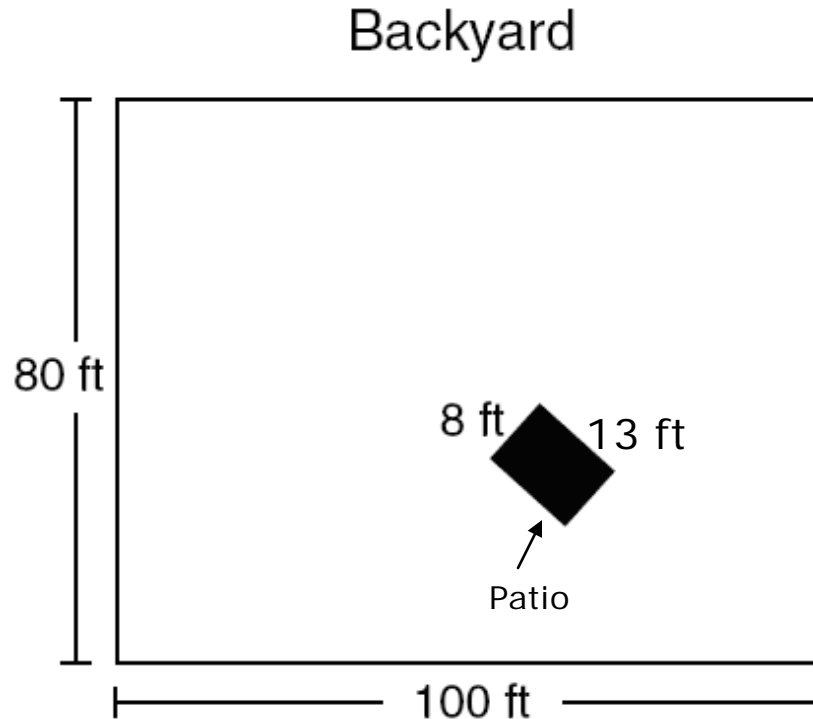


11. During basketball season Maria made 2 out of every 3 free throws she attempted. In the last basketball game, Maria attempted 12 free throws. How many free throws would she probably make?

- A 2
B 8
C 24



12. A family put a rectangular patio in their backyard and planted grass in the rest of the yard. The rectangular backyard is 100 feet by 80 feet, and the patio is 13 feet by 8 feet. What is the **area** of the backyard that is planted with grass?



$$\text{Area} = \text{length} \times \text{width}$$

- F** 402 sq. ft.
- G** 7,896 sq. ft.
- H** 8,000 sq. ft.

GO ON 

13. Find the greatest common factor of 12, 24, and 36.

- A** 6
 - B** 12
 - C** 20
-

14. Mrs. Miller is baking cookies for 16 children.

- She has already baked 24 cookies.
- She wants each child to have 2 cookies with none left over.

How many more cookies should she bake?

- F** 14
- G** 8
- H** 32



- 15.** If the cost of renting a canoe is a basic fee of \$5 plus an additional \$2.50 for each hour that the canoe is rented, which equation below can be used to find c , the cost in dollars of the rental?

- A** $c = 2.5h + 5$
- B** $c = 5h + 2.5$
- C** $c = 2.5(h + 5)$

-
- 16.** An odometer in a car read 5,364.6 miles at the beginning of a trip. It read 7,347.0 at the end of the trip. How many miles were traveled?

- F** 2711.6 miles
- G** 217 miles
- H** 1982.4 miles

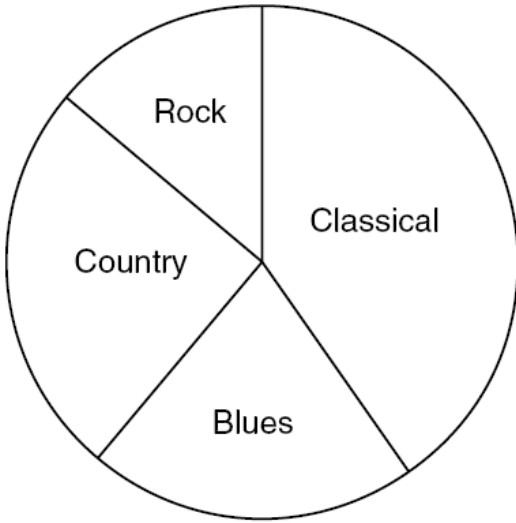


17. At Central City Music Store, the amount of music sold is:

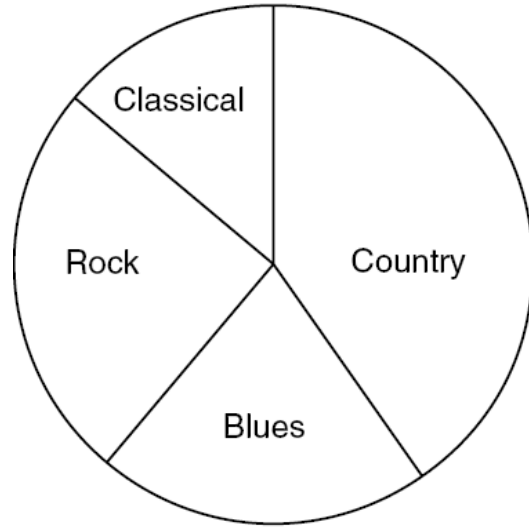
- 15% classical
- 20% blues
- 25% rock
- 40% country

Which graph best represents these data?

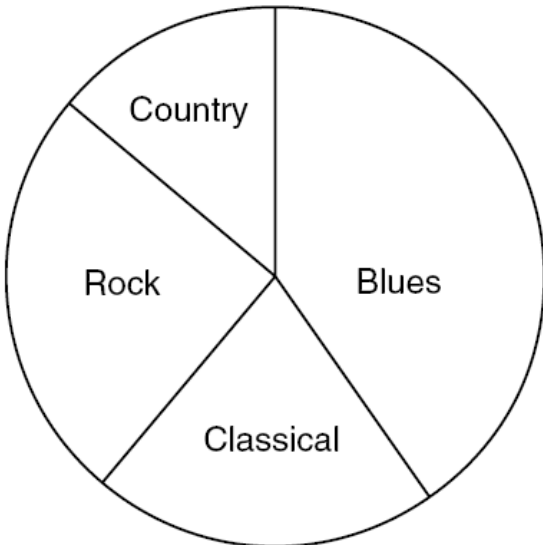
A Central City Music Store



C Central City Music Store

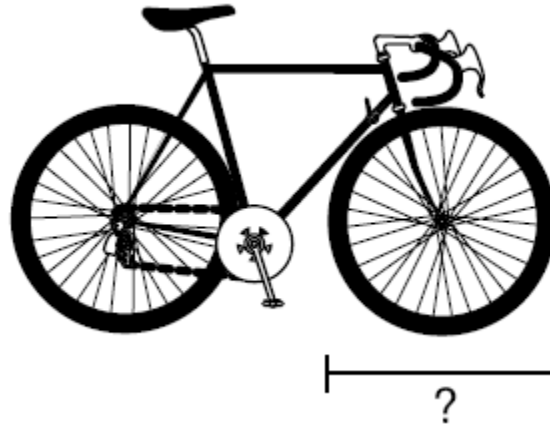


B Central City Music Store



Circumference: the distance around a circle.
 $C = \pi d$

18. Trevor knows the **circumference** of his bicycle tire, but he needs to find the diameter.



Which method can Trevor use to find the diameter?

- F Divide the circumference by π
- G Multiply the circumference by π
- H Subtract the circumference from π



19. The table below shows the areas of a triangle where the height of the triangle stays the same but the base changes.

Areas of Triangles

Height (units)	Base (units)	Area (square units)
6	2	6
6	4	12
6	6	18
6	8	24
6	n	?

Which expression can be used to find the area of a triangle that has a height of 6 units and a base of n units?

A $n - 24$

B $6 - 4n$

C $\frac{6n}{2}$



- 20.** An animal shelter has 20 cats and 25 dogs. What is the ratio of cats to dogs?

- F** 4 to 9
G 7 to 10
H 4 to 5

-
- 21.** Mrs. Vance has \$25.00 to spend on seeds for her garden.

- Tomato seeds \$1.50 per package.
- Corn seeds \$1.25 per package.

If she buys 10 packages of tomato seeds, which equation helps her to determine how much money she has left to spend on corn seeds.

- A** Add \$25.00, \$1.50 and \$1.25
B Subtract the product of 10 and \$1.50 from \$25.00
C Divide 10 by \$25.00 and add 1.50



22. Which of the following represents $\frac{9}{5}$?

F 2

G 1.8

H 0.4

23. Which of the following is the least common multiple of 6, 8, and 9?

A 23

B 8

C 72



- 24.** Gerald left for school at 7:05 A.M. and returned home from school at 2:50 P.M. About how many hours was Gerald at school?

F 2 h

G 8 h

H 12 h

-
- 25.** Which statement is true?

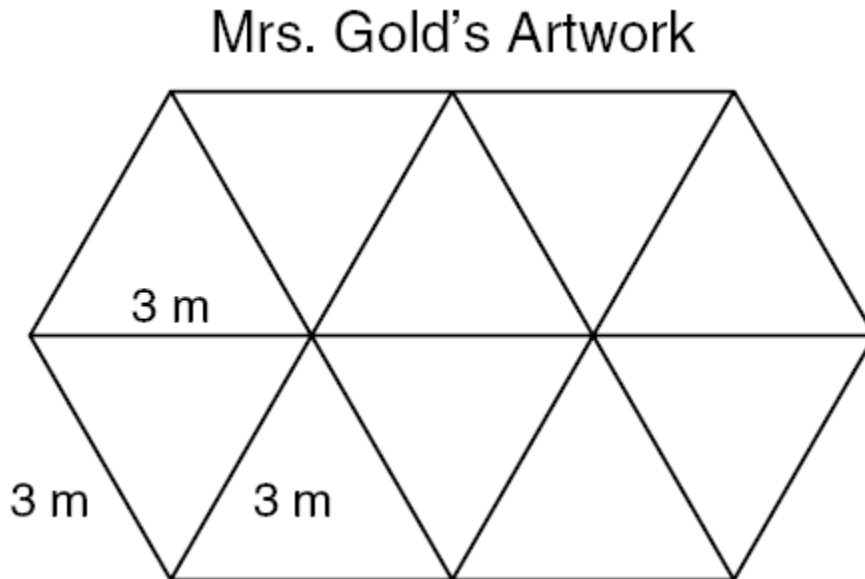
A $1\frac{1}{3} = \frac{10}{3}$

B $1\frac{1}{3} < \frac{5}{8}$

C $1\frac{1}{3} > 1\frac{1}{10}$



26. Mrs. Gold designed a piece of art by outlining equilateral triangles with wire.



How much wire did Mrs. Gold use to complete her piece of art?

- F 84 m
- G 57 m
- H 24 m



27. What is the rule to find the value of a term in the sequence below?

Sequence

Position, n	Value of Term
1	1
2	4
3	7
4	10
5	13
n	?

- A** $n + 3$
B $3n - 2$
C $n - 2$



- 28.** A bag contains balls.
- 3 red balls
 - 2 blue balls
 - 4 yellow balls
 - 3 green balls

If you randomly choose one ball from the bag, what is the probability that the ball will be blue?

F $\frac{1}{12}$

G $\frac{1}{2}$

H $\frac{1}{6}$

- 29.** John wants to use square tiles to make a rectangular patio.
- Each box of tile contains 30 square tiles.
 - The patio measures 38 feet by 22 feet.

What other information is needed to find the number of boxes of tiles John needs?

- A** Area of each square tile
- B** Area of the patio
- C** Perimeter of the patio



- 30.** If Mr. Jones drives at a speed of 65 miles per hour, which method can be used to find the number of hours it will take him to drive 260 miles?

- F** Add 65 to 260
- G** Divide 260 by 65
- H** Subtract 260 from 65
-

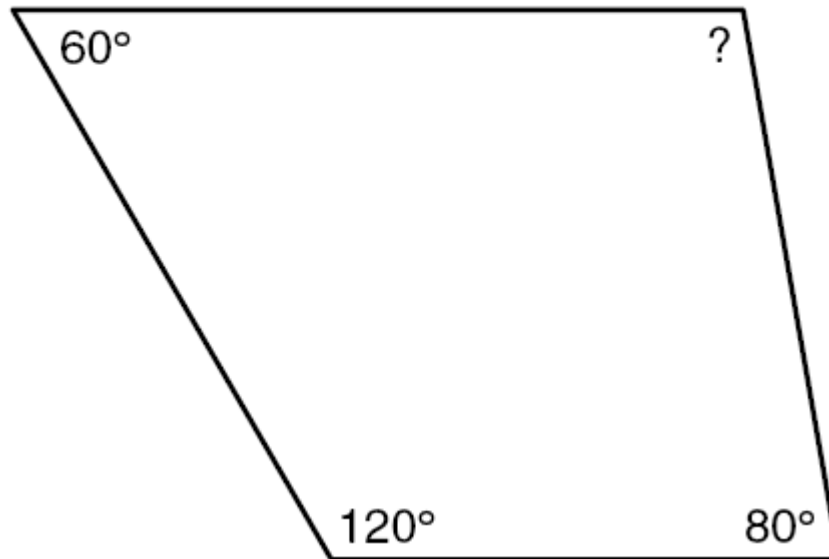
- 31.** Which is the prime factorization of 315?

- A** $3^3 \cdot 5$
- B** $3^3 \cdot 7$
- C** $3^2 \cdot 5 \cdot 7$



32. Mr. Sosa has a ranch in the shape of a trapezoid. The sides of the ranch form angles measuring 60° , 80° , and 120° . What is the measure of the fourth angle?

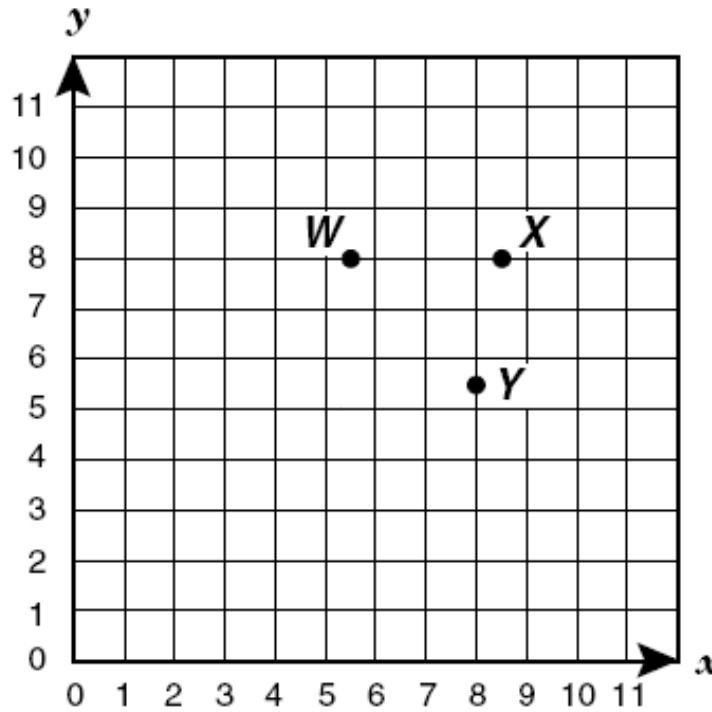
Mr. Sosa's Ranch



- F 40°
G 100°
H 300°



33. What point on the grid below corresponds to the coordinate pair $(5\frac{1}{2}, 8)$?



- A W
- B X
- C Y



34. 15% of the cans in a shipment of sodas were damaged. What fractions of the cans were damaged?

F $\frac{1}{6}$

G $\frac{3}{20}$

H $\frac{19}{50}$



35. Bob’s Lunch Café offers 3 kinds of sandwich meats and 3 kinds of bread. Which table shows all the possible sandwich combinations at Bob’s Lunch Café?

A Sandwich Combinations

Bread	Sandwich Filling
White	Chicken
Wheat	Chicken
Sourdough	Chicken
White	Tuna
Wheat	Tuna
Sourdough	Tuna

C Sandwich Combinations

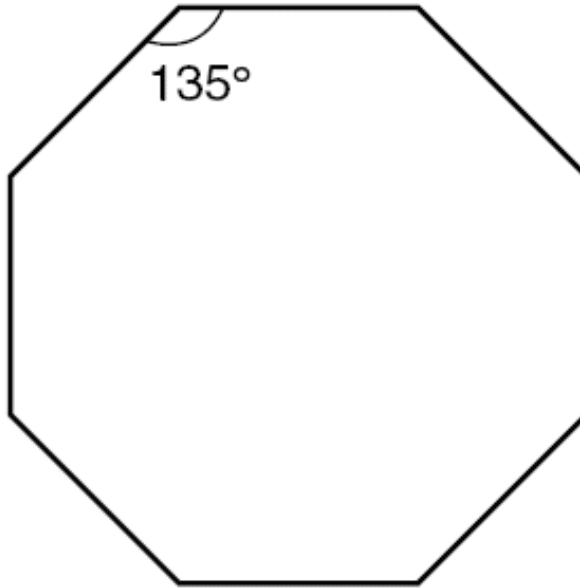
Bread	Sandwich Filling
White	Chicken
Wheat	Tuna
Sourdough	Ham

B Sandwich Combinations

Bread	Sandwich Filling
White	Chicken
White	Tuna
White	Ham
Wheat	Chicken
Wheat	Tuna
Wheat	Ham
Sourdough	Chicken
Sourdough	Tuna
Sourdough	Ham



36. The angle at each vertex of a regular octagon is 135° .



What type of angle is at each vertex?

- F Obtuse
- G Right
- H Acute



- 37.** Peter bought a 2-liter bottle of soda. How many millimeters of soda are in the bottle?

1 liter = 1,000 mL

- A** 500 mL
- B** 2,000 mL
- C** 1,000 mL

