



THE CATHOLIC ACADEMY
OF STAMFORD

June 2025

Dear Catholic Academy of Stamford Rising 8th Grade Algebra Students,

Congratulations on finishing another successful year! In order to be prepared for Algebra 1, you are being asked to complete the attached math packet. *Unless you register within the last two weeks of summer, you are responsible for completing the entire packet before the new school year begins at the end of August.*

Please read the directions carefully and make sure that all parts are completed. You will be receiving a grade (in regards to completeness and accuracy) for this assignment. **Please use a pencil and show your work.** Challenge yourself and do not use a calculator. This packet is due to Mrs. Mysogland on the first day of math class. Please note that if this math work is not submitted on time, a late penalty will be deducted from the grade.

Parents are asked to verify that their child completed this summer work by signing at the bottom of this letter.

In addition to the packet, 8th graders, you should also work on your IReady math path. The site is [clever.com/in/diobpt](https://www.clever.com/in/diobpt), then click on the IReady icon. You should try to do 30 minutes a week of IReady work.

Thank you.

Mrs. Mysogland

Parent Signature _____ Date _____

RATIONAL NUMBER OPERATIONS

QUICK CHECK

Name _____

Fill answers in the given grids.

1. A size 8 kids shoe measures $9\frac{2}{3}$ inches. If 5 pairs of size 8 kids shoes are lined end to end, then how many inches will they cover?

A. $36\frac{2}{3}$

B. $48\frac{1}{3}$

C. $77\frac{1}{3}$

D. 62

2. The record low temperature in Fargo, ND is -37°F . The record high is 109°F . What is the difference in the record high and the record low temperatures?

F. 72

G. 109

H. 33

J. 146

3. The local volleyball team hosts a concession stand to raise money. They can spend \$120 to purchase popcorn, candy, and drinks. They purchase 95 bags of popcorn at \$0.75 each and 35 bags of candy at \$1.20 each. How much money does the volleyball team have left to spend on drinks?

A. \$7.25

B. \$15.50

C. \$6.75

D. \$20.25

4. Mrs. Sloan is purchasing 3.4 pounds of trail mix that costs \$4.25 per pound. How much change will Mrs. Sloan receive if she gives the cashier \$20.00?

F. \$14.45

H. \$5.55

G. \$12.55

J. \$7.45

5. There are 36 people in a fitness studio. What fraction of the people are running?

• $\frac{3}{8}$ of the people lifted weights

A. $\frac{7}{24}$

B. $\frac{17}{24}$

• $\frac{1}{3}$ of the people did cross training

C. $\frac{5}{12}$

D. $\frac{7}{8}$

• the remaining people were running

1. (A) (B) (C) (D)

2. (F) (G) (H) (J)

3. (A) (B) (C) (D)

4. (F) (G) (H) (J)

5. (A) (B) (C) (D)

6. (F) (G) (H) (J)

7. (A) (B) (C) (D)

8. (F) (G) (H) (J)

9. (A) (B) (C) (D)

10. Use the grid below.

+	0	0	0	0		0	0		
-	1	1	1	1		1	1		
	2	2	2	2		2	2		
	3	3	3	3		3	3		
	4	4	4	4		4	4		
	5	5	5	5		5	5		
	6	6	6	6		6	6		
	7	7	7	7		7	7		
	8	8	8	8		8	8		
	9	9	9	9		9	9		

6. The weather report shows the 5 day forecast in St. Paul, Minnesota. What is the sum of the various temperatures over the period of five days?

DAY	TEMPERATURE (°F)
MONDAY	-6°
TUESDAY	3°
WEDNESDAY	4°
THURSDAY	-2°
FRIDAY	-1°

F. -4°

G. 2°

H. -3°

J. -2°

7. A 9 pound bag of sugar is being split into containers that hold $\frac{2}{3}$ of a pound. How many containers of sugar will the 9 pound bag create?

A. $13\frac{1}{2}$

B. $15\frac{1}{3}$

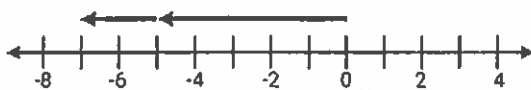
C. $13\frac{1}{3}$

D. 27

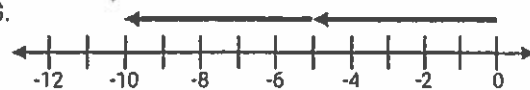
8. Which diagram correctly depicts the expression below?

$$-5 - 2$$

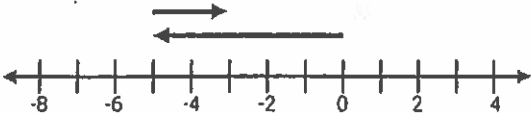
F.



G.



H.



J.



9. A spool of ribbon has 18 feet on it. Pieces measuring 8 inches will be cut from the spool of ribbon. How many 8 inch segments will be cut from the spool of ribbon?

A. 10

B. 27

C. 2.25

D. 14.8

10. The parent teacher association is raising money for a new swing set. They need \$682.56 to purchase the swing set and receive a \$200.00 donation. The remaining amount will be equally divided among 8 different student groups to raise. How much money will each student group need to raise in order to purchase the swing set? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

Name _____

- A. 18%
B. 82%
C. 62%
D. 77%

- F. \$1,280.00
G. \$960.00
H. \$240.00
J. \$9,600.00

$$I = p \cdot r \cdot t$$

money interest time
loaned rate
 in
 decimal
 form

3. A hot air balloon travels 18 miles in 3 hours. At this rate how many miles will the hot air balloon travel in $\frac{3}{4}$ hour?

- A. 4.5 B. 6 C. 11.5 D. 13.5

4. The price of a tablet was increased from \$180 to \$207. By what percentage was the price of the table increased?

$$\frac{\text{change}}{\text{original}} \times 100$$

- F. 33% H. 27%
- G. 8% J. 15%

- A. \$8.60
B. \$5.00
C. \$1.40
D. \$4.20

1. (A) (B) (C) (D)
2. (F) (G) (H) (J)
3. (A) (B) (C) (D)
4. (F) (G) (H) (J)
5. (A) (B) (C) (D)
6. (F) (G) (H) (J)
7. (A) (B) (C) (D)
8. (F) (G) (H) (J)
9. (A) (B) (C) (D)
10. Use the grid below.

					.		
+	0	0	0	0		0	0
-	1	1	1	1		1	1
	2	2	2	2		2	2
	3	3	3	3		3	3
	4	4	4	4		4	4
	5	5	5	5		5	5
	6	6	6	6		6	6
	7	7	7	7		7	7
	8	8	8	8		8	8
	9	9	9	9		9	9

6. Edgar pays \$67.86 for 7.8 pounds of fertilizer. What is the price per pound of fertilizer?

- F. \$6.98
- H. \$5.65
- G. \$8.70
- J. \$10.26

7. Mr. Mathewson increased the amount of weight he lifted each morning from 80 pounds to 90 pounds. By what percentage did Mr. Mathewson increase the amount of weight he lifted?

- A. 12.5%
- B. 10%
- C. 15%
- D. 18.5%

$$\frac{\text{change}}{\text{original}} \times 100$$

8. Margo missed 24.6% of the free throw shots in a season. During the season she took a total of 90 free throw shots. Which of the following is the best estimate of the number of free throw shots Margo missed?

- F. 18
- G. 12
- H. 22
- J. 25

9. A hospital bill is estimated to be \$462.00. It ends up actually costing the patient \$525.00. What is the percent of error in the bill?

- A. 7%
- B. 15%
- C. 9%
- D. 12%

$$\frac{\text{difference}}{\text{actual}} \times 100$$

10. Jameson pays \$39.90 for 3.8 pounds of almonds. What is the price per pound of almonds? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

EQUATIONS AND INEQUALITIES

QUICK CHECK

Name _____

Challenging

1. Ms. Hernandez is taking her children and their friends to the movies. She will pay \$10 for her adult ticket and \$7 for each child ticket. Ms. Hernandez does not want to spend more than \$40. Which inequality can be used to find c , the number of child tickets Ms. Hernandez can purchase?

A. $7 + 10c > 40$

B. $10c - 7 \leq 40$

C. $10 + 7c > 40$

D. $10 + 7c \leq 40$

2. If $x = -3$, then which inequality is true?

F. $-5x + 2 \leq 12$

G. $3x - 7 \geq -16$

H. $14 + 2x < 5$

J. $\frac{1}{2}x + 6 > 11$

3. Which two expressions are equivalent?

A. $4(2 + x)$
 $4 \cdot 2 + 2 \cdot x$

B. $4 + 2 + x$
 $(4 + 2) + x$

C. $4 \cdot x \div 2$
 $4 \cdot (x \div 2)$

D. $4 \div (2 - x)$
 $4 - 2 \div x$

4. Which expression is equivalent to $9y - \frac{1}{2}(4y + 20)$?

(Use distributive property and combine like terms.)

F. $11y - 10$

H. $7y + 10$

G. $7y - 10$

J. $11y + 10$

5. If the perimeter of the rectangle is 118 units, then what is the value of x ?

A. $x = 9$

B. $x = 13$

C. $x = 18$

D. $x = 21$

$2x - 3$



$4x + 8$

(Perimeter add up all sides)

1.	(A)	(B)	(C)	(D)
2.	(F)	(G)	(H)	(J)
3.	(A)	(B)	(C)	(D)
4.	(F)	(G)	(H)	(J)
5.	(A)	(B)	(C)	(D)
6.	(F)	(G)	(H)	(J)
7.	(A)	(B)	(C)	(D)
8.	(F)	(G)	(H)	(J)
9.	(A)	(B)	(C)	(D)
10. Use the grid below.				
+	0	0	0	0
-	1	1	1	1
	2	2	2	2
	3	3	3	3
	4	4	4	4
	5	5	5	5
	6	6	6	6
	7	7	7	7
	8	8	8	8
	9	9	9	9

6. A courier service charges a \$5 pick up fee plus \$0.15 per mile. The total charge to deliver a package was \$7.85. How many miles did the courier service travel to deliver the package?

F. 52 miles

G. 19 miles

H. 85 miles

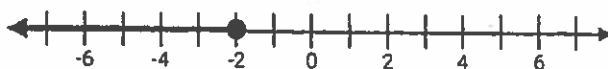
J. 33 miles

7. Which situation best represents the equation below?

$$26 = 179 - 9k$$

- A. A pool of water has 26 gallons of water in it. It is filled at a rate of 9 gallons per minute, until there are 179 gallons.
- B. A dairy farm has 179 cows in it. All of the cows are placed in groups of nine. There are 26 groups of cows.
- C. There were 26 boxes for delivery at the post office one morning. By the end of the day, 179 boxes had been added to the delivery pile. The boxes will be delivered in groups of k .
- D. A school assembly has 179 students in it. Nine teachers escort k number of students out of the assembly, until there are 26 students remaining.

8. The number line below represents the solution to which inequality?



F. $-2x + 7 \geq 8$

H. $6x - 9 \leq -21$

G. $7x + 11 \leq 4$

J. $-3x - 15 \leq -27$

9. A home improvement store advertises 60 square feet of flooring for \$253.00, plus an additional \$80.00 installation fee. What is the cost per square foot for the flooring?

- A. \$4.95
- B. \$5.25
- C. \$5.55
- D. \$6.06

10. What is the value of x in this equation?

$$-4x + 8 = 42$$

Use the bubbles in the answer section to mark your answer.

ANGLE RELATIONSHIPS QUICK CHECK

Name _____

1. A triangular garden is being formed with stones. The three sides measure 4 meters by 6 meters by 7 meters. Which of the following is a true statement about the side lengths of the triangle?

(any two sides must be > than 3rd.)

- A. The side lengths will not form a triangle because $6 + 4 > 7$.
- B. The side lengths will form a triangle because $4 + 6 < 7$.
- C. The side lengths will not form a triangle because $7 + 4 < 6$.
- D. The side lengths will form a triangle because $6 + 7 > 4$.

2. Two angles are supplementary to each other. If the first angle measures 58° , then which of the following could be the measure of the second angle?

- F. 122°
- G. 32°
- H. 58°
- J. 90°

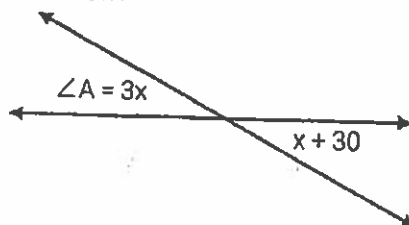
3. Which of the following will NOT produce a triangle?

(any two sides must be > than 3rd.)

- A. angle measures of 33° , 67° , and 80°
- B. side lengths of 5 inches, 5 inches, and 9 inches
- C. angle measures of 90° , 60° , 30°
- D. side lengths of 4 inches, 8 inches, and 12 inches

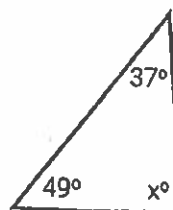
4. What is the measure of $\angle A$ in the image shown below?

- F. $m\angle A = 45^\circ$
- G. $m\angle A = 30^\circ$
- H. $m\angle A = 55^\circ$
- J. $m\angle A = 35^\circ$



5. Triangle DEF is shown below. Which of the following equations could be used to find the value of x ?

- A. $x + 37 + 49 = 360$
- B. $x + 86 = 180$
- C. $180 - 90 = x$
- D. $86 - x = 180$



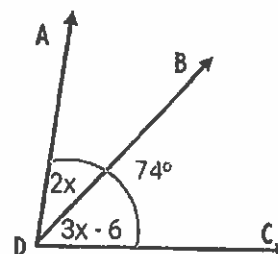
1. (A) (B) (C) (D)
2. (F) (G) (H) (J)
3. (A) (B) (C) (D)
4. (F) (G) (H) (J)
5. (A) (B) (C) (D)
6. (F) (G) (H) (J)
7. (A) (B) (C) (D)
8. (F) (G) (H) (J)
9. (A) (B) (C) (D)

10. Use the grid below.

+	0	0	0	0		0	0		
-	1	1	1	1		1	1		
	2	2	2	2		2	2		
	3	3	3	3		3	3		
	4	4	4	4		4	4		
	5	5	5	5		5	5		
	6	6	6	6		6	6		
	7	7	7	7		7	7		
	8	8	8	8		8	8		
	9	9	9	9		9	9		

6. Angle ADB is adjacent to angle BDC. Which of the following is a true statement about the angles?

- F. $\angle ADB = 34^\circ$ and $\angle BDC = 45^\circ$
- G. $\angle ADB = 32^\circ$ and $\angle BDC = 42^\circ$
- H. $\angle ADB = 40^\circ$ and $\angle BDC = 54^\circ$
- J. $\angle ADB = 24^\circ$ and $\angle BDC = 30^\circ$



7. A teacher asked three different students to write the conditions that would result in a triangle. Which of the following students listed conditions that would result in more than one triangle?

STUDENT 1

$\triangle ABC$
AB is 5 cm
 $\angle A$ is 50°
 $\angle B$ is 70°

STUDENT 2

$\triangle ABC$
AB is 7 cm
BC is 9 cm
CA is 16 cm

STUDENT 3

$\triangle ABC$
 $\angle A$ is 62°
 $\angle B$ is 36°
 $\angle C$ is 82°

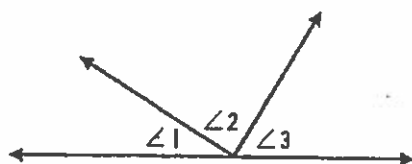
- A. Student I and II
- B. Student II only
- C. Student III
- D. Student I and III

8. Which of the following equations can be used to find the missing angle, x , in the triangle below?



- F. $x + 84 = 180$
- G. $x + 84 = 360$
- H. $x + 42 = 90$
- J. $x + 42 = 180$

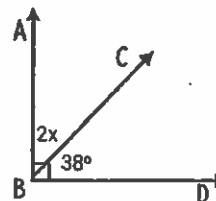
9. The measure of $\angle 2$ is 90° . Which of the following statements is not true about the diagram below?



- A. angle 2 is a right angle
- B. angles 1 and 3 are complementary
- C. angles 1 and 3 are supplementary
- D. angles 2 and 3 are adjacent

10. Angle ABC and angle CBD are complementary. What is the value of x ?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.



2D GEOMETRY

QUICK CHECK

Name _____

1. In PE a parachute is laid out on the gym floor. The parachute has a radius of 16 feet. Which measurement is closest to the circumference of the parachute in feet?

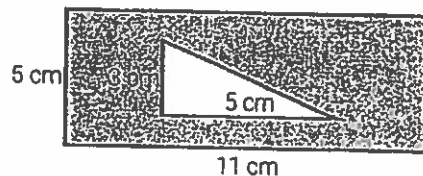
A. 100.48 ft² B. 198.4 ft² C. 49.6 ft² D. 803.84 ft²

2. A coffee shop sign is in the shape of a circle. The sign measures 18 inches across in diameter. Which measurement is closest to the area of the sign in square inches?



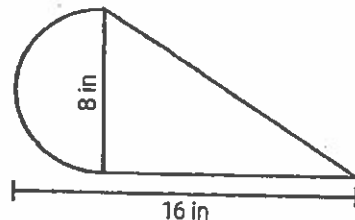
F. 56.52 in² G. 101.36 in² H. 188.78 in² J. 254.34 in²

3. A triangle is inscribed in a rectangle, as shown below. What is the area of the shaded region?



A. 40 cm² C. 47.5 cm²
B. 62.5 cm² D. 22.75 cm²

4. Using various puzzle pieces, Marco forms the figure below. What is the best estimate of the area of the figure?



F. 146 in² G. 73 in² H. 57 in² J. 123 in²

1. (A) (B) (C) (D)

2. (F) (G) (H) (J)

3. (A) (B) (C) (D)

4. (F) (G) (H) (J)

5. (A) (B) (C) (D)

6. (F) (G) (H) (J)

7. (A) (B) (C) (D)

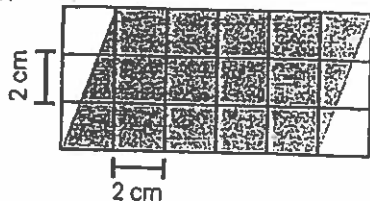
8. (F) (G) (H) (J)

9. (A) (B) (C) (D)

10. Use the grid below.

⊕	0	0	0	0		0	0		
⊖	1	1	1	1		1	1		
	2	2	2	2		2	2		
	3	3	3	3		3	3		
	4	4	4	4		4	4		
	5	5	5	5		5	5		
	6	6	6	6		6	6		
	7	7	7	7		7	7		
	8	8	8	8		8	8		
	9	9	9	9		9	9		

5. A puzzle is shown below. Which of the following is the closest to the area of the shaded portions of the puzzle?

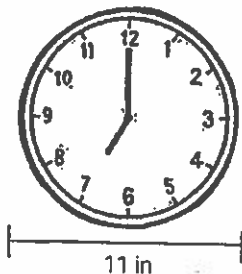


- A. 18 cm^2
- B. 72 cm^2
- C. 24 cm^2
- D. 60 cm^2

6. The area of a parallelogram measures 171 cm^2 . The base of the parallelogram is 18 cm in length. Which of the following best represents the height of the parallelogram?

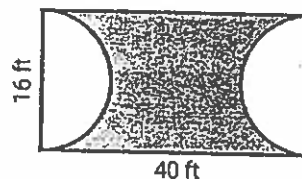
- F. 11 cm
- G. 9.5 cm
- H. 13.5 cm
- J. 8 cm

7. A round clock is shown below. Which of the following is closest to the number of inches around the clock?



- A. 20.8 in
- B. 43.36 in
- C. 16.2 in
- D. 34.56 in

8. Janice is painting a portion of a gymnasium court. If Janice paints the shaded area, then how many square feet will she paint?



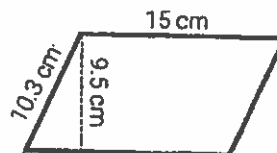
- F. 527.58 ft^2
- G. 861.7 ft^2
- H. 439.04 ft^2
- J. 378.6 ft^2

9. A circular rug has a radius of 4 feet. Which of the following is closest to the number of square inches the rug covers?

- A. 55.26 ft^2
- B. 50.24 ft^2
- C. 29.7 ft^2
- D. 33.6 ft^2

10. What is the area of the figure below?

Record the solution in the gridable answer section.



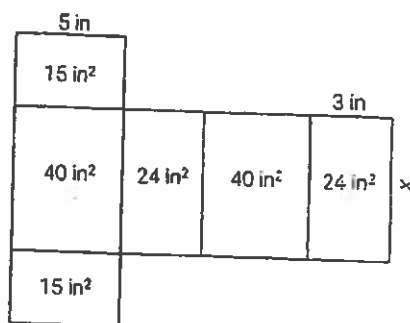
VOLUME AND SURFACE AREA

QUICK CHECK

Name _____

1. The rectangular prism below has a total surface area of 158 in^2 . Use the net below to determine the missing dimension, x .

(You'll need to find areas of individual rectangles)



1.	(A)	(B)	(C)	(D)
2.	(F)	(G)	(H)	(J)
3.	(A)	(B)	(C)	(D)
4.	(F)	(G)	(H)	(J)
5.	(A)	(B)	(C)	(D)
6.	(F)	(G)	(H)	(J)
7.	(A)	(B)	(C)	(D)
8.	(F)	(G)	(H)	(J)

- A. 6 in B. 8 in C. 12 in D. 10 in

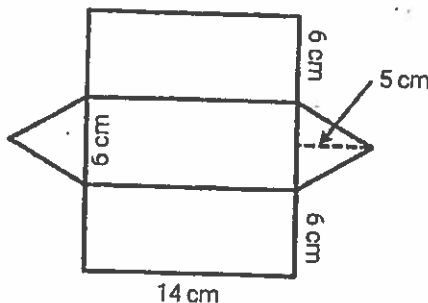
2. A tissue box measures 6 inches wide and 6 inches long. If the volume of the tissue box is 252 inches, then what is the height of the tissue box?

- F. 11 in
G. 4 in
H. 7 in
J. 5 in

$$V = LWH$$

3. The net below depicts a triangular prism. What is the total surface area of the prism?

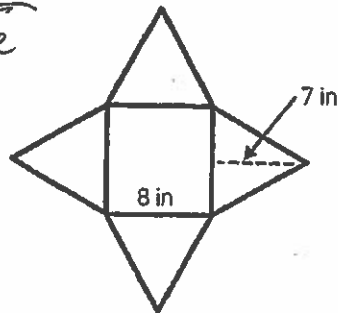
Add up
3 rectangle areas
2 triangle areas



- A. 282 cm^2 C. 312 cm^2
B. 210 cm^2 D. 624 cm^2

4. The net below shows a square pyramid. What is the lateral surface area?

*just the
As*



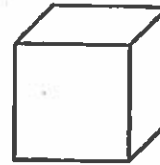
F. 176 in^2

H. 64 in^2

G. 112 in^2

J. 210 in^2

5. The volume of the cube below is 250.047 m^3 . The side length could be between which sets of numbers below?



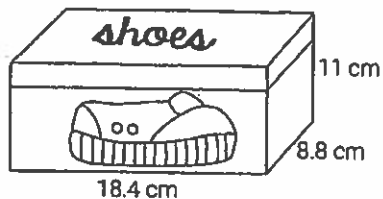
A. 4 cm and 5 cm

C. 6 cm and 7 cm

B. 5 cm and 6 cm

D. 7 cm and 8 cm

6. Which of the following is closest to the volume of the shoe box?



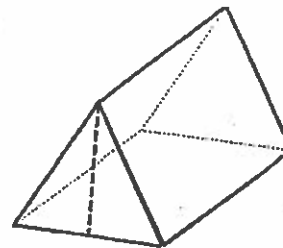
F. $1,490 \text{ cm}^3$

G. $2,134 \text{ cm}^3$

H. $1,782 \text{ cm}^3$

J. $1,962 \text{ cm}^3$

7. Which of the following shapes describes the 2D figure formed by slicing parallel to the base of a triangular prism?



A. rectangle

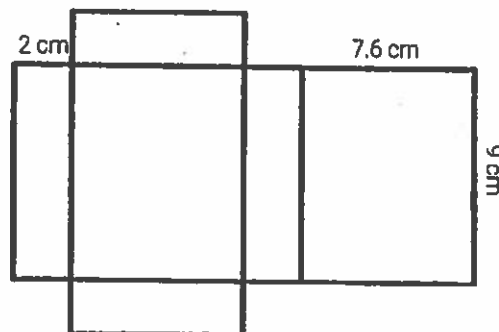
B. parallelogram

C. trapezoid

D. triangle

8. The dimensions of the rectangular prism are shown on the net below. Which of the following is closest to the total surface area of the figure?

*(Surface Area is
all areas
added up.)*



F. 101.6 cm^2

G. 203.2 cm^2

H. 285.1 cm^2

J. 178.7 cm^2

DATA AND STATISTICS

QUICK CHECK

Name _____

1. Below is data collected from a random sample of 80 students regarding their fitness habits. If the entire school has 600 students, then what is a reasonable estimate for the number of students who consider themselves to have an average fitness habit?

STUDENTS	POOR	AVERAGE	EXCELLENT
	16	44	20

- A. 175 B. 120 C. 280 D. 330

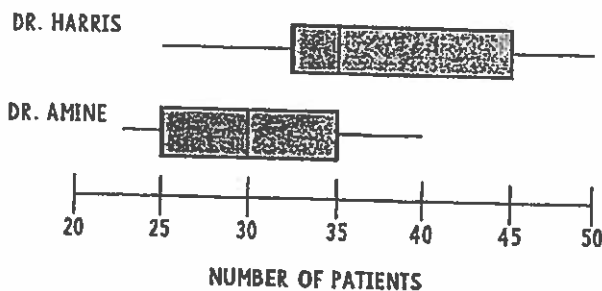
1. (A) (B) (C) (D)
2. (F) (G) (H) (J)
3. (A) (B) (C) (D)
4. (F) (G) (H) (J)
5. (A) (B) (C) (D)
6. (F) (G) (H) (J)
7. (A) (B) (C) (D)
8. (F) (G) (H) (J)

2. The number of teachers from two different schools are shown below. The school district would like to survey staff members about the school dress code. Based on the data, which of the samples below would be considered random?

	6 th GRADE TEACHERS	7 th GRADE TEACHERS	8 th GRADE TEACHERS
NORTH MS	16	14	19
WEST MS	11	10	12

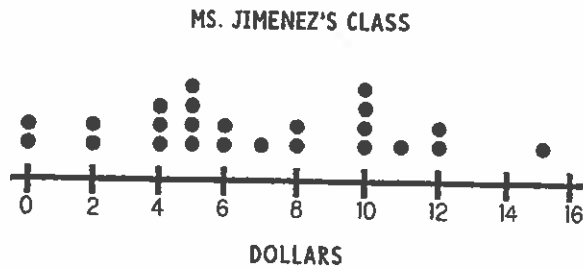
- F. All of the teachers at North MS are sampled.
 G. The seventh grade teachers at North MS and West MS are sampled.
 H. The teachers are alphabetized by last name and every fifth teacher is sampled.
 J. The teachers who attend the school board meeting are sampled.

3. The number of patients at a doctors office is tracked over a period of 10 days. Which statement best supports the data?



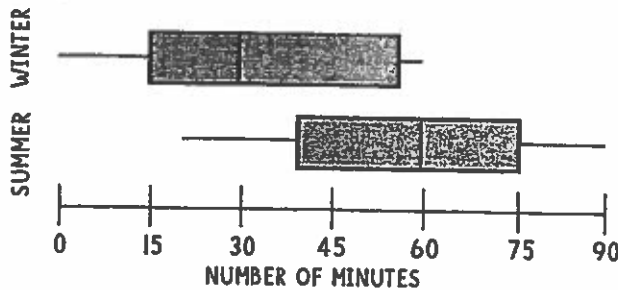
- A. The data for Dr. Amine's office is more symmetrical than the data for Dr. Harris's office.
 B. The interquartile range of the two offices is the same.
 C. The median number of patients at Dr. Harris's office is less than the median number of patients at Dr. Amine's office.
 D. The range of the data for Dr. Harris's office is less than the range of the data for Dr. Amine's office.

4. The dot plot below represents the number of dollars in allowance that students receive each week in Mrs. Jimenez's class. What is the median amount of allowance?



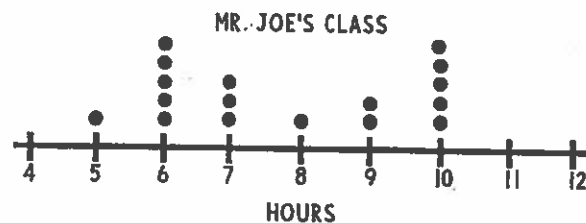
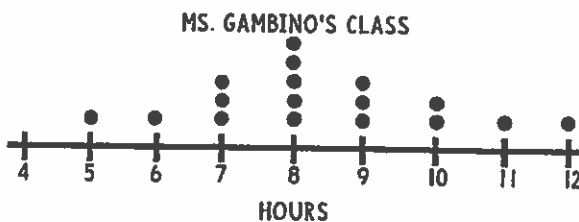
- F. 5
G. 6
H. 7
J. 8

5. Twenty students in Mr. Martin's class each took a survey about the number of minutes they played outside. The box plots represent the amount of time the students spent outside playing in the summer and in the winter. Which statement is best supported by the data?



- A. The range of number of minutes outside is the same in the summer and in the winter.
B. The median number of minutes outside in the summer is equal to the maximum number of minutes outside in the winter.
C. The interquartile range for the number of minutes outside is the same in the summer and in the winter.
D. The minimum number of minutes outside in the summer is the same as the first quartile in the winter.

6. The average number of hours of sleep of Ms. Gambino's and Mr. Joe's classes is shown below. Which of the following statements is best supported by the data?



- F. The median number of hours slept in Ms. Gambino's class is less than the median number of hours in Mr. Joe's class.
G. The data for Ms. Gambino's class is symmetrical, while the data for Mr. Joe's class is skewed right.
H. The range of data in Mr. Joe's class is less than the range of data in Ms. Gambino's class.
J. The mode of the data in Ms. Gambino's class was equal to the mode of the data in Mr. Joe's class.

7. Which of the following groups is NOT considered a sample of the US population?

- A. Women who live in the US
B. People who are registered to vote in the US
C. Europeans who vacation in the US
D. Students who attend public schools in the US

8. A local bank polls every twentieth customer to determine if they are satisfied with the helpfulness of the bank. Forty customers are surveyed and 26 are satisfied. What conclusion can be drawn for the 800 daily customers?

- F. 65% of the customers are unsatisfied with the helpfulness of the bank
G. 26% of the customers are unsatisfied with the helpfulness of the bank
H. 40% of the customers are satisfied with the helpfulness of the bank
J. Of the 800 customers, 520 would be satisfied with the helpfulness of the bank