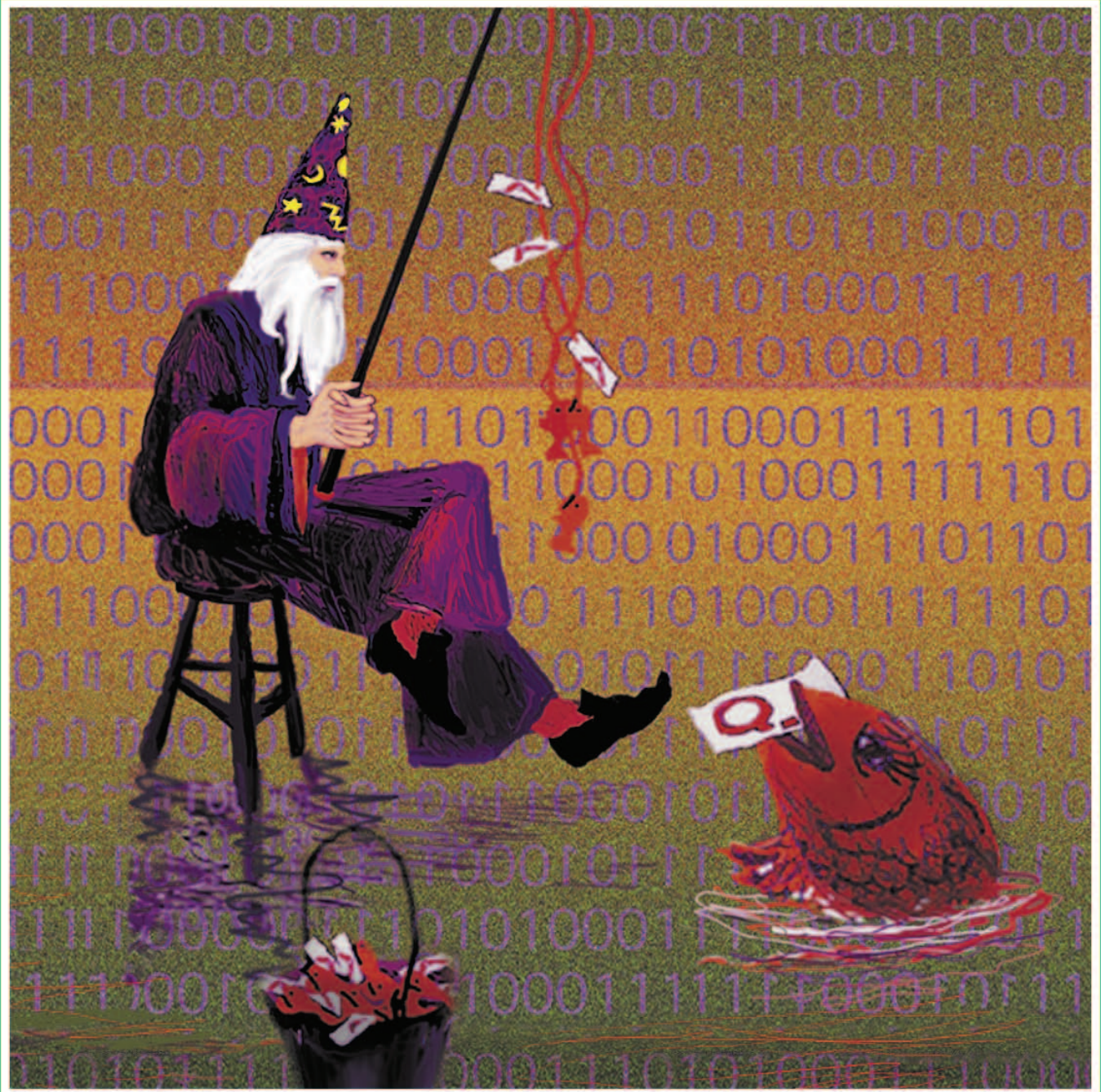


MATH 5-6



QUESTION CATALOGUE

Math 5-6

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1. Numbers and their Properties

158. Each board game has 17 pieces. Jamie bought 18 games. How many game pieces are there in total?

- (1) 35 (3) 204
(2) 102 (4) **306**

Base your answers to questions 467 and 468 on the information below.

Jerry spends his Saturday mornings mowing his neighbors' lawns for money. He gets paid \$21 per lawn.

467. How much money can Jerry make if he mows 10 lawns?

- (1) \$31 (3) \$212
(2) **\$210** (4) \$220

468. How much money can he make if he mows 13 lawns?

- (1) \$212 (3) **\$273**
(2) \$263 (4) \$277

1796. If $a = 6$, $b = 10$, and $c = 12$, which of the following expressions equals 192?

- (1) $(12 - c) \times a \times b$ (3) **$c(a + b)$**
(2) $a(b + 6)$ (4) $a(b \times c)$

1926. $30 \times 25 =$

- (1) 580 (3) **750**
(2) 650 (4) 850

1939. 75×50

- (1) 125 (3) **3,750**
(2) 375 (4) 37,500

2056. In Daniel's room, he has 12 shelves. Each shelf has 25 books on it. How many books does Daniel have in his room?

- (1) 37 (3) 290
(2) 65 (4) **300**

2057. Sally's garden contains 45 rows of flowers with 25 flowers in each row. How many flowers are there in Sally's entire garden?

- (1) 9,225 (3) 1,025
(2) **1,125** (4) 1,005

2063. Multiply: 46×63

- (1) **2,898** (3) 414
(2) 2,588 (4) 109

2064. Multiply: 50×85

- (1) 135 (3) 4,050
(2) 425 (4) **4,250**

C. Multiplication | i. Multiply by Two Digit Numbers

2065. Michele has 21 rows of plants in her garden. Each row has 17 plants. How many plants are in her entire garden?

- (1) 467 (3) 168
(2) **357** (4) 38

2066. Cynthia is going pumpkin-picking. There are 57 rows of pumpkins with 75 pumpkins in each row. How many pumpkins are there for Cynthia to choose from?

- (1) 132 (3) 3,845
(2) 684 (4) **4,275**

2067. Larry wants to buy a pet. At the pet store, there are 29 different types of pets. There are 45 of each type of pet. How many pets are there in total for Larry to choose from?

- (1) **1,305** (3) 161
(2) 965 (4) 74

2396. Mr. Chung planted 40 rows of vegetables on his farm. Each row contains 25 vegetables. How many vegetables are there in total?

- (1) **1,000** (3) 850
(2) 950 (4) 65

2413. Bradley's class organized a car wash to benefit a local charity. They charged \$6 per car and washed 64 cars. How much money did they collect?

- (1) \$70 (3) \$584
(2) **\$384** (4) \$1,840

2559. Lockhart Middle School has four fifth grade classes with 27 students in each class. Wilbanks Middle School has three fifth grade classes with 23 students in each class. How many total fifth grade students are there in both schools?

- (1) 50 (3) 173
(2) 150 (4) **177**

2560. Each roll of quarters has 40 quarters in it. How many quarters are there in 15 rolls?

- (1) **600** (3) 300
(2) 450 (4) 55

2585. The fifth grade students at Paulson Middle School collect 26 cans per day for a recycling competition. If they continue to collect cans at this rate, how many cans will they collect over 180 days?

- (1) **4,680** (3) 2,060
(2) 3,600 (4) 206

2716. $(62)(15) = (5)(62) +$

- (1) $(10)(60)$ (3) **$(10)(62)$**
(2) $(12)(60)$ (4) $(10)(15)$

5. Money as Related to Fractions and Decimals

41. Eugene needs \$0.70 to buy a candy bar. He has 1 quarter, 2 dimes, 4 nickels, and 3 pennies. How many pennies would he need to buy the candy bar?

- (1) **2** (3) 20
(2) 12 (4) 200

71. Tillie had 3 quarters, 5 dimes, and 4 nickels in her pocket. Would she have enough money to buy a flower for \$1.00 and a lollipop for \$0.25?

- (1) no she needs \$0.15 more
(2) **yes and have \$0.20 left over**
(3) yes and have \$0.15 left over
(4) no she needs \$0.20 more

81. Katalina needs \$85 to buy her parents an anniversary gift. She makes \$3.00 on Mondays, Wednesdays, and Fridays, \$4.00 on Tuesdays and Thursdays, and doesn't work on the weekend. How long will it take her to earn enough money for the gift?

- (1) 4 weeks (3) 3 weeks
(2) **5 weeks** (4) 2 weeks

118. Terrance and Jodi want to buy their mother a present. They decide to buy her a sweater that costs \$43.18. They want to split the cost evenly. They each give \$25 to the clerk to pay for the gift. How much change should they each get?

- (1) **\$3.41** (3) \$6.83
(2) \$3.45 (4) \$21.59

135. Julie bought candy for some of her friends. She bought 5 candy bars for 85¢ each and 4 bags of candy for \$2.43 each. She handed the cashier a \$20 bill. How much change did she receive?

- (1) **\$6.03** (3) \$13.97
(2) \$10.28 (4) \$15.75

137. A taxi driver charges an initial rate of \$2.00 plus 65¢ per mile. Beth travels 15 miles in the taxi. How much does she owe the taxi driver?

- (1) \$2.65 (3) **\$11.75**
(2) \$9.75 (4) \$13.75

138. A new bike costs \$150. Marissa has \$62 saved for the bike. At her job, she is paid \$8 an hour. How many hours does she need to work before she can afford the bike?

11 hours

388. If Sean has one twentieth of one dollar, how much money does he have?

He has a nickel.

1901. How can you use dimes and pennies to model \$0.56?

- (1) 4 dimes, 6 pennies (3) 5 dimes, 16 pennies
(2) **5 dimes, 6 pennies** (4) 50 dimes, 6 pennies

392. Kristen wants to buy a candy bar which costs \$1.50. She has three quarters, two dimes, and four nickels. How many pennies does she need before she can buy the candy bar?

- (1) 10 (3) 40
(2) **35** (4) 50

702. Josiah bought 10 lollipops at a store for 15 cents each. If he also had a coupon for 35 cents off the total cost, which of the following could Josiah use to find out how much money he needed?

- (1) $(10 \times 0.15) + 0.35 = \1.85
(2) $(10 \times 0.35) - (10 \times 0.15) = \2.00
(3) **$(10 \times 0.15) - 0.35 = \1.15**
(4) $(10 - 0.15) - 0.35 = \$9.50$

867. Jackson paid for a book with a \$20 bill and received one dollar, one quarter, two dimes, and four pennies in change. How much did he pay for the book?

- (1) \$18.49 (3) \$19.49
(2) **\$18.51** (4) \$19.51

1899. Which amount is \$35.00 when rounded to the nearest dollar?

- (1) \$34.49 (3) \$35.54
(2) **\$34.70** (4) \$35.90

1900. Mary's mother spent \$85.90 on groceries in January, \$80.97 in February, \$89.05 in March, and \$80.75 in April. In which month did she spend the **least** on groceries?

- (1) January (3) March
(2) February (4) **April**

1902. Round \$67.55 to the nearest dollar.

- (1) \$67.00 (3) **\$68.00**
(2) \$67.60 (4) \$70.00

1914. Paul's father spent \$45.75 on gas in July, \$45.57 in August, \$47.55 in September, and \$47.05 in October. In which month did he spend the **greatest** amount on gas?

- (1) July (3) **September**
(2) August (4) October

1917. Which combination of nickels and pennies will amount to \$0.38?

- (1) **6 nickels, 8 pennies** (3) 4 nickels, 14 pennies
(2) 3 nickels, 8 pennies (4) 6 nickels, 5 pennies

2424. Kwame bought some candy for \$1.45 and he received \$0.31 in change. What is the fewest number of coins he could have received?

- (1) 2 (3) 4
(2) **3** (4) 5

3. Triangles

B. Angles of a Triangle

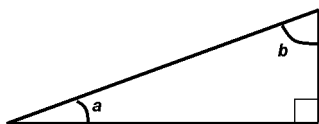
188. In right triangle ABC , with right angle B , which of the following is true?

- (1) The sum of angles A and B is 90° .
- (2) The sum of angles A and C is 90° .**
- (3) The sum of angles A and B is 180° .
- (4) The sum of angles A and C is 180° .

189. In right triangle $\triangle ABC$ with right angle C , which of the following is true?

- (1) The sum of angles A and B is 90° .**
- (2) The sum of angles A and C is 90° .
- (3) The sum of angles A and B is 180° .
- (4) The sum of angles A and C is 180° .

205. In the figure below, the measure of angle a is 20° . What is the measure of angle b ?

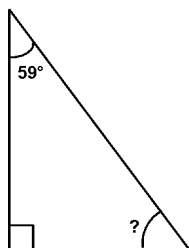


- (1) 50°
- (2) 60°
- (3) 70°**
- (4) 80°

285. One angle in a right triangle is measured to be 56° . The measurements of the other angles are 90° and

- (1) 24°
- (2) 34°**
- (3) 44°
- (4) 54°

292. Base your answer to the following question on the diagram below.



What is the measure of the missing angle?

- (1) 30°
- (2) 31°**
- (3) 32°
- (4) 33°

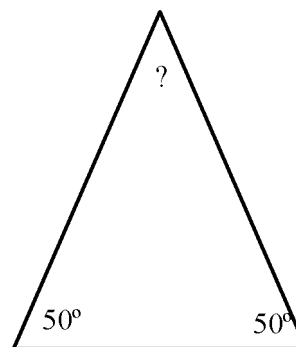
459. If a triangle has one angle which is obtuse then,

- (1) The sum of the other two angles must be equal to 90 degrees
- (2) The sum of the other two angles must be greater than 90 degrees
- (3) The sum of the other two angles must be less than 90 degrees**
- (4) None of the above

460. If a triangle has one right angle then the other two angles must be,

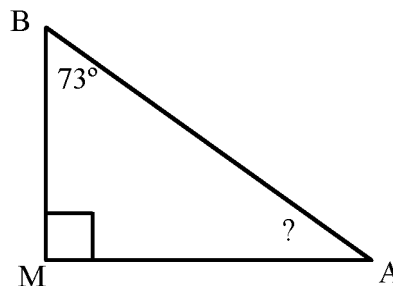
- (1) obtuse
- (2) acute**
- (3) right
- (4) No way to tell

1142. Find the measure of the unknown angle.



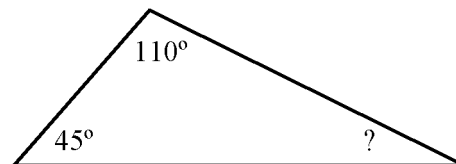
80°

1143. Find the measure of the unknown angle.



17°

1144. Find the measure of the unknown angle.



25°

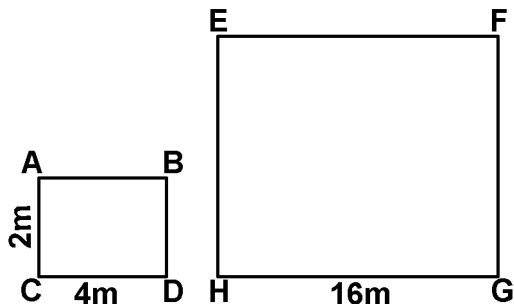
2538. One of the acute angles of a right triangle measures 35° . What is the measure of the other acute angle?

- (1) 45°
- (2) 50°
- (3) 55°**
- (4) 145°

2546. If two angles of a triangle are equal then which of the following is true?

- (1) All three angles of the triangle are equal.
- (2) The angles are measured 45° .
- (3) Two sides of the triangles are equal.**
- (4) Three sides of the triangle are equal.

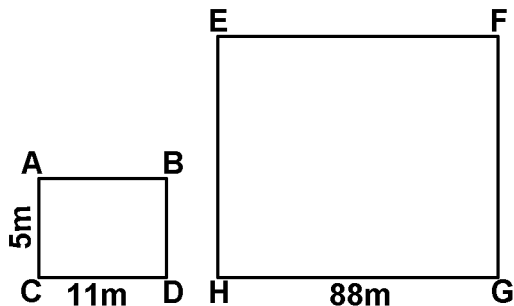
168. Rectangle $ABCD \approx EFGH$ where \overline{AC} corresponds to \overline{EH} .



What is the measure of \overline{EH} ?

- (1) 2 m
- (2) 4 m
- (3) 8 m
- (4) 16 m

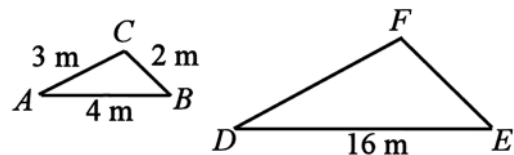
169. Rectangle $ABCD \approx EFGH$ where \overline{AC} corresponds to \overline{EH} .



What is the measure of \overline{EH} ?

- (1) 5 m
- (2) 11 m
- (3) 40 m
- (4) 88 m

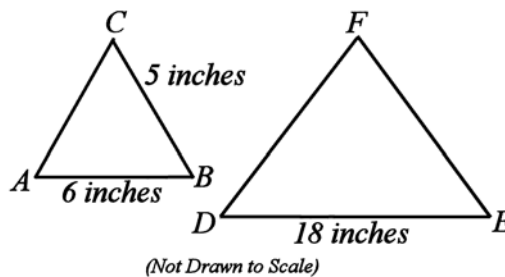
170. In the figure below, $\triangle ABC \approx \triangle DEF$.



What is the length of side \overline{EF} ?

- (1) 2 m
- (2) 4 m
- (3) 8 m
- (4) 16 m

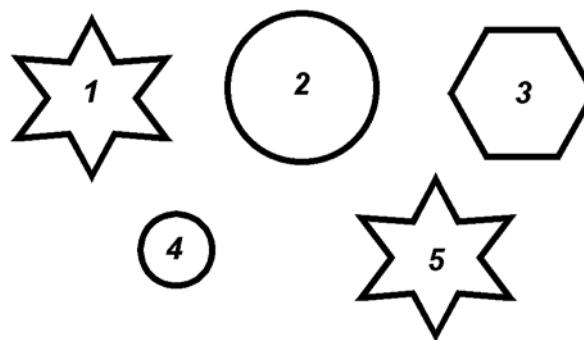
171. In the figure below, $\triangle ABC$ is similar to $\triangle DEF$.



What is the length of side \overline{EF} ?

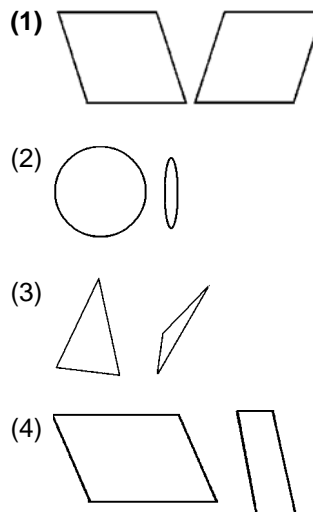
- (1) 5 in.
- (2) 15 in.
- (3) 18 in.
- (4) 135 in.

185. Which two of the following figures are similar but *not* congruent?



- (1) 2 and 4
- (2) 1 and 5
- (3) 3 and 4
- (4) 2 and 3

193. Which of the following pairs of shapes are similar?



7. Graphing

A. Ordered Pairs/Coordinates (*4)

1851. What point is located at (0,2) ?

(1) *D*

(2) *E*

(3) *G*

(4) *H*

1852. How are points *B* and *E* alike?

(1) They have the same x-coordinate.

(2) **They have the same y-coordinate.**

(3) They lie in the same quadrant.

(4) They have nothing in common .

1853. Making a rectangle with points *B* and *C* as 2 opposite vertices, find the coordinates of the other 2 vertices.

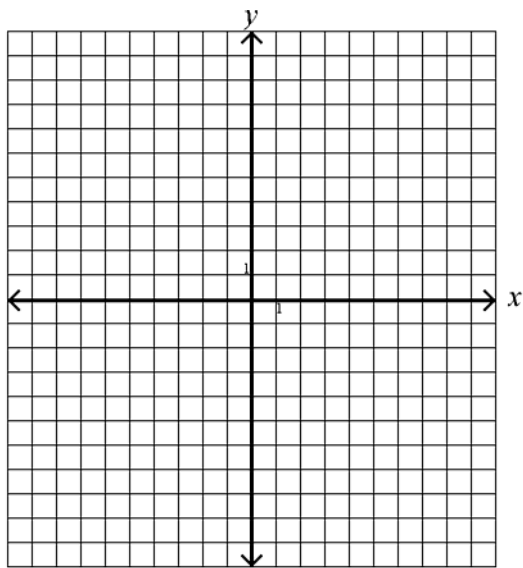
(1) (-1,-1) and (-2,4)

(2) (1,-1) and (-2,-4)

(3) (1,-1) and (2,-4)

(4) **(-1,-1) and (-2,-4)**

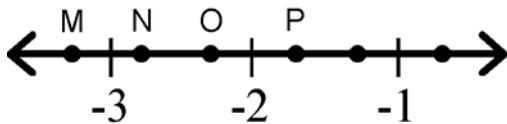
184. Graph a quadrilateral with the coordinates (-6, 9), (7, 9), (7, 4), (-6, 4).



What is the area of this figure?

65

Base your answers to questions 213 and 214 on the number line below.



213. Which point best represents $-2\frac{2}{3}$?

(1) *M*

(3) *O*

(2) *N*

(4) *P*

214. Which point best represents $-3\frac{1}{3}$?

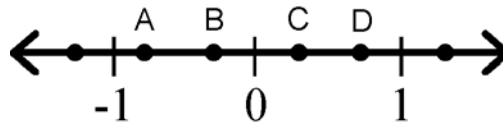
(1) *M*

(3) *O*

(2) *N*

(4) *P*

Base your answers to questions 215 and 216 on the number line below.



215. Which point best represents $\frac{1}{3}$?

(1) *A*

(3) *C*

(2) *B*

(4) *D*

216. Which point best represents $-\frac{2}{3}$?

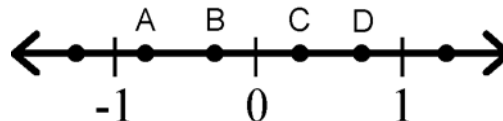
(1) *A*

(3) *C*

(2) *B*

(4) *D*

219. Which point on the number line below could represent $\frac{3}{5}$?



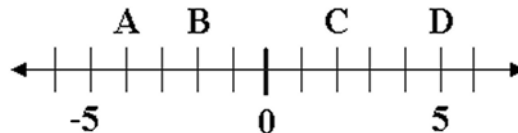
(1) *A*

(3) *C*

(2) *B*

(4) *D*

221. Which point on the number line below could represent -4?



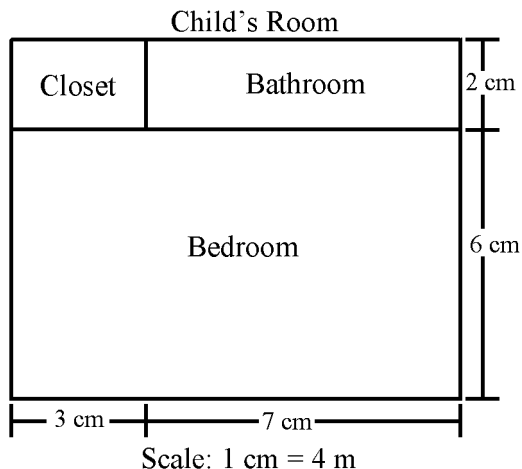
(1) *A*

(3) *C*

(2) *B*

(4) *D*

Base your answers to questions 1649 through 1651 on the scale drawing below.



1649. What are the actual dimensions of the child's closet?

- (1) 2 cm × 3 cm (3) 6 m × 7 m
 (2) 2 m × 3 m **(4) 8 m × 12 m**

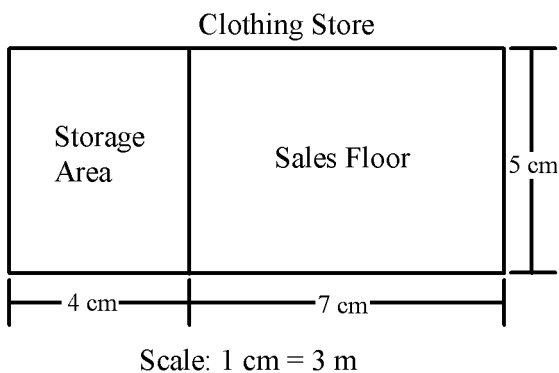
1650. What are the actual dimensions of the child's bedroom?

- (1) 32 m × 40 m (3) 10 m × 6 m
(2) 24 m × 40 m (4) 10 cm × 6 cm

1651. What are the actual dimensions of the child's entire room?

- (1) 32 m × 10 m (3) 40 m × 8 m
 (2) 32 m × 24 m **(4) 40 m × 32 m**

Base your answers to questions 1652 and 1653 on the scale drawing below.



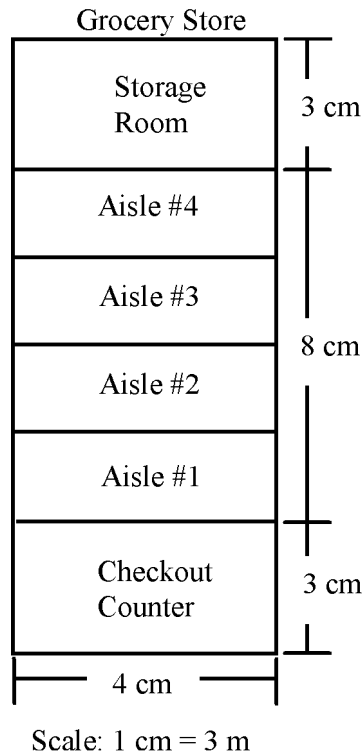
1652. What are the actual dimensions of the sales floor?

- (1) 33 m × 15 m (3) 15 m × 7 m
(2) 15 m × 21 m (4) 5 m × 7 m

1653. What are the actual dimensions of the entire clothing store?

- (1) 84 m × 15 m (3) 24 m × 15 m
(2) 33 m × 15 m (4) 14 m × 8 m

Base your answers to questions 1857 through 1859 on the following scale drawing.



1857. What are the actual dimensions of the check-out counter?

- (1) 3 cm × 4 cm **(3) 9 m × 12 m**
 (2) 6 m × 7 m (4) 12 m × 16 m

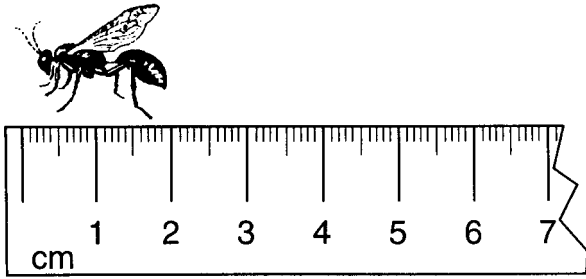
1858. Assuming all aisles are the same size, what are the actual dimensions of aisle #2?

- (1) 12 m × 24 m **(3) 6 m × 12 m**
 (2) 7 m × 5 m (4) 4 m × 2 m

1859. What are the actual dimensions of the storage room **and** the aisles?

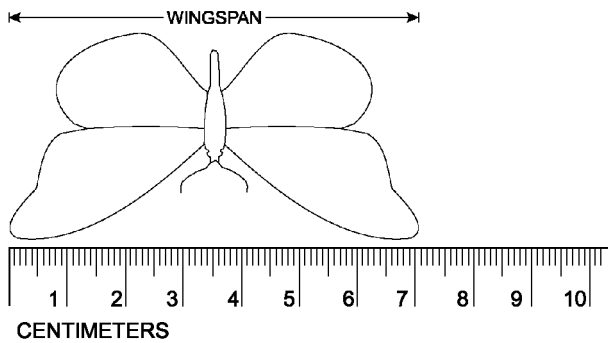
- (1) 9 m × 12 m **(3) 12 m × 33 m**
 (2) 12 m × 42 m (4) 16 m × 42 m

2917. How long is the bee? (Round to the nearest cm)



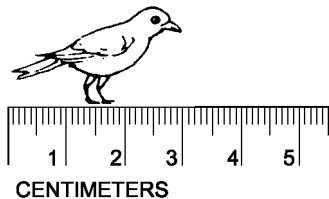
- (1) 1.5 cm
- (2) 1.9 cm
- (3) **2 cm**
- (4) 2.2 cm

2918. Mary is measuring the wingspans of different butterflies. What is the wingspan of the butterfly depicted in the picture below? (Round to the nearest cm)



- (1) 6.75 cm
- (2) **7 cm**
- (3) 7.05 cm
- (4) 7.10 cm

2919. How long is the bird in the diagram below? Round to the nearest cm.

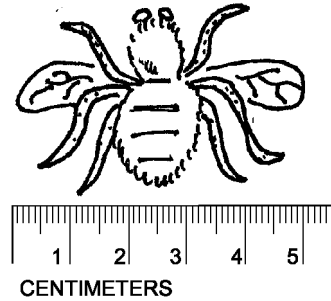


- (1) 2.8 cm
- (2) 2.9 cm
- (3) **3 cm**
- (4) 3.2 cm

2957. The length of a trail that Pat hiked in one day could have been

- (1) 5 milliliters
- (2) 5 centimeters
- (3) 5 meters
- (4) **5 kilometers**

2920. Find the wingspan of the fly. Round to the nearest centimeter.



- (1) 4.8 cm
- (2) 4.9 cm
- (3) **5 cm**
- (4) 5.1 cm

2962. About how tall is an adult man?

- (1) 2 centimeters
- (2) **2 meters**
- (3) 2 kilometers
- (4) 2 millimeters

2966. 3 meters = _____ centimeters.

- (1) .03
- (2) .3
- (3) 30
- (4) **300**

2987. Four boys measured their height.

Julio was 1.66 meters
 Yang was 155 centimeters
 Leonard was 1.7 meters
 Sam was 160 centimeters

Which boy was the tallest?

- (1) Julio
- (2) Yang
- (3) **Leonard**
- (4) Sam

2988. A car is 4 meters long. The car is _____ millimeters long.

- (1) 400 millimeters
- (2) 3,600 millimeters
- (3) **4,000 millimeters**
- (4) 8,000 millimeters

3012. Which measurement is about the same as the length of a baseball bat?

- (1) **1 meter**
- (2) 1 kilometer
- (3) 1 centimeter
- (4) 1 millimeter

3026. What unit of measure should be used to measure a pencil?

- (1) **centimeter**
- (2) meter
- (3) kilometer
- (4) millimeter

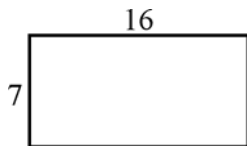
3077. If Suzie had 60 meters of string on her kite, how many centimeters of string were on her kite?

- (1) .06 centimeters
- (2) **6,000 centimeters**
- (3) 600 centimeters
- (4) .6 centimeters

3. Perimeter

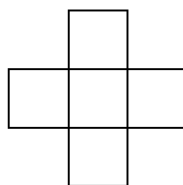
B. Rectangles and Squares (*4)

211. If the dimensions of the figure below were increased by 100%, what would be the change in the perimeter of the figure?



- (1) $\frac{1}{4}$ as long
- (2) $\frac{1}{2}$ as long
- (3) 2 times longer**
- (4) 4 times longer

234. Use the figure below to answer the question.



The area of each square in the figure is 16 square units. What is the perimeter of the figure?

- (1) 16 units
 - (3) 48 units**
 - (2) 32 units
 - (4) 64 units
251. Mr. Diaz wants to build a fence around his yard. The yard is 140 feet long and 30 feet wide. How many feet of fencing will he need?
- (1) 170 ft.
 - (3) 340 ft.**
 - (2) 200 ft.
 - (4) 420 ft.
253. Mr. Bill wants to build a fence around his garden. The garden is 50 feet long and 20 feet wide. How many feet of fencing will he need?
- (1) 30 feet
 - (3) 140 feet**
 - (2) 70 feet
 - (4) 280 feet
254. Mr. Joe is building a house. It is going to be 30 feet long and 60 feet wide. What is the perimeter of the house?
- (1) 30 ft.
 - (3) 180 ft.**
 - (2) 90 ft.
 - (4) 1,800 ft.
273. What is the perimeter of a rectangle with sides 9 feet and 5 feet?
- (1) 14 ft.
 - (3) 28 ft.**
 - (2) $22\frac{1}{2}$ ft.
 - (4) 45 ft.

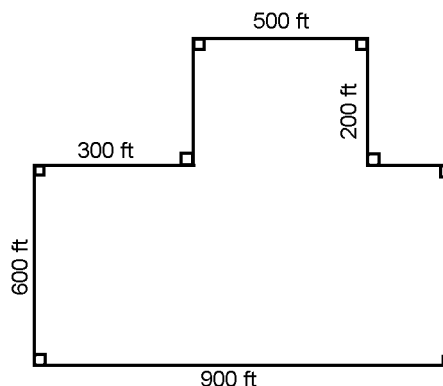
286. What is the length of a side of a square if its perimeter is 16 centimeters?

- (1) 2 cm
- (2) 4 cm**
- (3) 6 cm
- (4) 8 cm

287. The perimeter of a square sandbox is 24 feet. Which equation will determine the side, s , of the sandbox?

- (1) $2s = 24$
- (4) $4s = 24$**
- (2) $s^2 = 24$
- (5) $s = 24$
- (3) $2s^2 = 24$

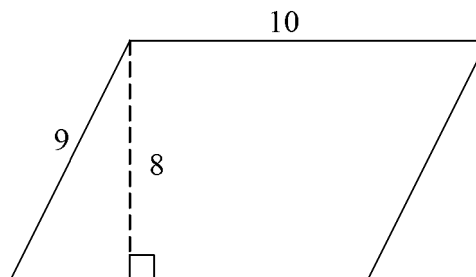
291. Base your answer on the information and figure below. Mr. Kim and his son own a farm. They built a fence to enclose their farm as shown in the diagram below.



How many feet of fencing was used?

3,400 ft

304. Base your answer to the following question on the parallelogram below. (All units measured in inches)



What is the perimeter of the parallelogram?

- (1) 19 inches
 - (3) 38 inches**
 - (2) 20 inches
 - (4) 40 inches
457. The perimeter of a square is 24 meters. What is the length of the side of an equilateral triangle with the same perimeter?
- (1) 4 meters
 - (4) 8 meters**
 - (3) 7 meters
 - (2) 5 meters

82. Ricky and Casey are going to an amusement park. They can spend only 5 hours in the park. Before getting on any ride they must wait on a line about 25 minutes long. Each ride is about 5 minutes long and each ride has a line. How many rides can Ricky and Casey go on in the 5 hours they have?

- (1) 15 rides **(3) 10 rides**
 (2) 5 rides (4) 25 rides

90. Dawson did the stats for the football team in his school.

FOOTBALL STATS

Stats of Game	# of each
Wins	5
Loses	3
Ties	2

What is the ratio of wins to loses?

- (1) $\frac{3}{5}$
 (2) $\frac{5}{10}$
(3) $\frac{5}{3}$
 (4) $\frac{3}{10}$

154. Jake can complete his chores in 15 minutes. He does his chores every day of the week. How many minutes per week does he spend doing chores?

- (1) 75 minutes **(3) 105 minutes**
 (2) 90 minutes (4) 120 minutes

710. On a class field trip, there was 1 adult for every 8 students. If a total of 54 students and adults went on the trip, how many were students?

- (1) 6 **(3) 48**
 (2) 46 (4) 50

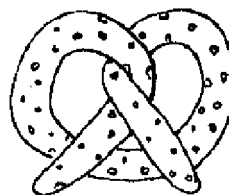
747. Oleg can make 3 slides for every 5 pictures she develops. If she develops 30 pictures, how many slides can she make?

- (1) 15 (3) 30
(2) 18 (4) 50

748. The ratio of horses to chickens on a farm is 3:2. If the farm has 18 horses, how many chickens do they have?

- (1) 6 (3) 20
(2) 12 (4) 27

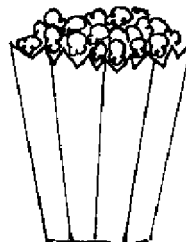
161. The amount of calories for each food is given below.



Pretzel: 150 calories



Doughnut: 190 calories



Popcorn: 38 calories



Cookie: 68 calories

What is the ratio of food items that have less than 100 calories to food items that have more than 100 calories?

- (1) 1:3 **(3) 1:1**
 (2) 1:2 (4) 2:1

885. In a package of paper, the ratio of red paper to blue paper is 2 to 3. Mrs. Smith bought 6 packages of paper for her class. If she has 60 sheets of red paper, how much blue paper does she have?

- (1) 20 sheets **(3) 90 sheets**
 (2) 40 sheets (4) 120 sheets

890. There are 80 students in the school sports program. The swimming team has 20 students. What is the ratio of students on the swimming team to all students in the sports program?

- (1) $\frac{1}{4}$**
 (2) $\frac{4}{3}$
 (3) $\frac{7}{16}$
 (4) $\frac{4}{7}$

979. The actual distance between Thomas Jefferson Middle School and West Meadow Beach is 48 miles. The distance between the towns is 4 inches on a map. What is the scale of the map.

- (1) 1 mile = 12 inches (3) 1 mile = 16 inches
 (2) 1 inch = 16 miles **(4) 1 inch = 12 miles**

5. Estimation

A. Solve Problems for which an Exact Answer is Inappropriate

720. Estimate 67% of 24.
 (1) 8 (3) **16**
 (2) 12 (4) 18
778. A bookshelf can hold 116 books. Each shelf can fit up to 28 books. To estimate how many shelves are needed, which equation should be used?
 (1) $120 + 30 = 150$
 (2) **$120 \div 4 = 30$**
 (3) $120 \times 30 = 3,600$
 (4) $120 - 30 = 90$
785. Saki's family eats 3 to 5 oranges per day. Which is the best estimate for how many days it will take Saki's family to eat a bag of 30 oranges?
 (1) 3 to 10 days (3) **6 to 10 days**
 (2) 5 to 8 days (4) 8 to 12 days
787. Last year there were 1175 students at Ward Melville High School. This year there are 15 percent more students than last year. *Approximately* how many students are at Ward Melville High School this year?
 (1) **1,400** (3) 1,600
 (2) 1,500 (4) 1,800
924. Jorge and Todd went apple picking together. Jorge picked a total of 23 apples and Todd picked a total of 36 apples. What is the best estimate of the product of their two apple collections?
 (1) 100 apples (3) 700 apples
 (2) 600 apples (4) **800 apples**
925. Nelly counted the number of birthday candles in a box and got 58. How many candles are *approximately* in 8 boxes?
 (1) 400 (3) 600
 (2) **480** (4) 800
926. Eggs costs 11 cents each. Rayna buys 29 eggs. How much will the eggs *approximately* cost her?
 (1) **\$3.00** (3) \$4.00
 (2) \$3.50 (4) \$5.00
927. Roberto invited 28 of his friends to his birthday party. He is going to the store to buy supplies and he needs two cups, two plates, and three napkins for each person. How many cups, plates, and napkins does he *approximately* need?
 (1) 190 (3) 230
 (2) **210** (4) 250
2831. Fanny bought three packs of candy for \$0.99 each. About how much did they cost all together?
\$3

928. Danielle is making lemonade for her lemonade stand. She needs ten lemons and two quarts of water for every ten people. Danielle predicts she will have 72 customers. *Approximately* how much water does she need?
 (1) **14 quarts** (3) 35 quarts
 (2) 28 quarts (4) 70 quarts
929. Every day for three weeks Claudia saved 38 cents. *Approximately* how much money did she save in total?
 (1) \$7 (3) **\$8**
 (2) \$7.50 (4) \$8.50
930. In a survey Dave finds that 67 of his 100 classmates are right-handed. Based upon his data what is the best estimation of the number of right-handed students in a group of 300 students?
 (1) 240 (3) 220
 (2) 250 (4) **210**
959. Pears cost \$0.48 per pound at the supermarket. Which is the best estimate of the cost of $2\frac{1}{4}$ lb of pears?
 (1) **\$1.10** (3) \$1.30
 (2) \$1.25 (4) \$2.00
966. A class recycles about 42 cans each week. What is the best estimate for how many cans they will have recycled after 14 weeks?
 (1) 450 (3) **560**
 (2) 500 (4) 600
2517. Kendra is selling candy bars for a school fundraiser. If each candy bar costs \$0.45 and Kendra needs to raise \$20, then which of the following is the best estimate to how many candy bars Kendra needs to sell in order to earn \$20?
 (1) 20 (3) 60
 (2) **40** (4) 70
2593. Tamika and her parents are building some bookshelves in her room. If each shelf can hold about 17 books and Tamika has 102 books, how can Tamika estimate how many shelves she needs?
 (1) **$100 \div 20 = 5$** (3) $100 \times 20 = 2,000$
 (2) $100 + 20 = 120$ (4) $100 - 20 = 80$
2616. Which of the following expressions is closest to $591 - 107$?
 (1) $600 - 200$ (3) $1,000 - 100$
 (2) **$600 - 100$** (4) $500 - 100$
2832. Hot dogs cost \$0.99 each. Harry buys 4 hot dogs and hands the cashier \$5. About how much change does he receive?
\$1

1. Patterns and Functions

B. Describe and Represent Patterns and Functional Relationships

263. *Two lines are either parallel or intersecting.*
- Is this statement true or false? Support your answer with a proof or examples, as appropriate.
- False. The lines could be skew lines.**
393. There are 20 peanuts in a bag. If Allison and Hanna take turns eating one peanut each, and Allison eats the first peanut, then who eats the third to last peanut?
- (1) Hanna**
(2) Allison
394. There are 20 chips in a bag. If Mike, Andrew, and Lisa take turns eating one chip each, and Mike eats the first chip, Andrew the second, Lisa the third and they continue in this pattern, who eats the last chip?
- (1) Mike (3) Lisa
(2) Andrew
2238. Melissa only collects pennies that she finds facing heads up. If she finds one penny facing heads up for every 3 pennies she finds, when will she have 10 pennies collected?
- (1) After finding 10 pennies
(2) After finding 20 pennies
(3) After finding 30 pennies
(4) After finding 60 pennies
2239. At the batting range, Jonathan, Brandon, and Ben take turns hitting the ball. If Jonathan hits the first ball, Brandon hits the second ball, Ben hits the third ball, and they continue in this pattern to hit a total of 32 balls, who hits the last ball?
- (1) Jonathan (3) Ben
(2) Brandon
2240. Jessica and Alanna take turns watching their favorite half-hour TV programs. If they start watching TV at 12:00 p.m. and Jessica watches her show first, who watches their favorite show from 4:30-5:00 p.m.?
- (1) Alanna**
(2) Jessica
2241. Cory, Daniel, Jesse, and John each take turns eating cookies. Cory eats the first cookie, John eats the second cookie, Daniel eats the third cookie, Jesse eats the fourth cookie and they continue in this pattern, who eats the 30th cookie?
- (1) Cory (3) Jesse
(2) Daniel **(4) John**

2242. Rebecca, Aliza, and Danielle take turns feeding their dog. If Aliza feeds the dog on Sunday, Danielle feeds the dog on Monday, Rebecca feeds the dog on Tuesday and they continue in this pattern, who feeds the dog on Friday?
- (1) Rebecca** (3) Danielle
(2) Aliza
2243. Jenna has a pair of blue jeans, a pair of black pants, and a pair of sweatpants that she switches off wearing every 3 days. If she wears the sweatpants on the 1st day of school, the blue pants on the 2nd day of school, the black pants on the 3rd day of school, and she continues in this pattern, what pair of pants does she wear on the 17th day of school?
- (1) blue jeans** (3) sweatpants
(2) black jeans
2244. Sophia, Jack, Brett, and Maria takes turns watching their little sister Mary. If Sophia watches Mary on Monday, Maria watches her on Tuesday, Jack watches her on Wednesday, Brett watches her on Thursday, and they continue in this pattern, who watches Mary on Saturday?
- (1) Sophia (3) Jack
(2) Brett **(4) Maria**
2664. Mohammad can only play soccer on a day when it does not rain. In the month of May, it has rained the 4th, 10th, and 16th. If rain continues to follow this pattern, which day should Mohammad expect to play soccer?
- (1) May 20** (3) May 28
(2) May 22
2670. Slim and Jim both want to use the internet. Their mother tells them to alternate every hour. If Slim wants to visit a website at 7:30 P.M., what time should he try to start using the Internet?
- (1) 3 P.M.** (3) 2 P.M.
(2) 4 P.M. (4) 6 P.M.
2671. There are ten toys in a grab bag. If Jamison, Scott, and Natalie take turns reaching into the bag, and Jamison grabs the first gift, Scott the second, Natalie the third, and they continue in this pattern, who gets the last remaining gift?
- (1) Jamison** (3) Natalie
(2) Scott
2696. Jones won \$1,000,000 in the lottery. He had to pay taxes on his winnings. If he was only left with \$350,000 after paying his taxes and buying a \$250,000 car, how much did he pay in taxes?
- (1) \$250,000 (3) \$350,000
(2) \$300,000 **(4) \$400,000**

1. Patterns and Functions

D. Use Patterns and Functions to Represent and Solve Problems

827. Albert goes to school early every fourth day. If he went to school early on Thursday, what is the next day when he will go to school early?
 (1) Tuesday (3) Thursday
(2) Wednesday (4) Friday
828. Mick volunteered at a retirement home on August 3, 7, and 11. If the same pattern continues, what will be the first day Mick volunteers in September?
 (1) September 2 **(3) September 4**
 (2) September 3 (4) September 5
829. At the zoo, the gorillas were fed on May 7, 10 and 13. If the same pattern of feeding continues, what is the next date the gorillas will be fed?
 (1) May 15 (3) May 19
(2) May 16 (4) May 24
830. At the zoo the bears were fed on May 4, 9, and 14. If the same pattern of feeding continues, what is the next date the bears will be fed?
 (1) May 15 **(3) May 19**
 (2) May 16 (4) May 24
2383. A survey of 50 students was taken to find whether they preferred football or baseball. There were 18 fewer students who preferred baseball. How many students preferred football?
 (1) 16 **(3) 34**
 (2) 32 (4) 38
2384. Wanda walks to school 4 days a week. The walk to school takes 10 minutes and the walk home takes 13 minutes. How much time does it take Wanda to walk to school and home each week?
 (1) 32 minutes (3) 1 hour and 12 minutes
 (2) 1 hour and 2 minutes **(4) 1 hour and 32 minutes**
2665. What is the next number in the following sequence?
 7, -14, 28, -56, 112,
 (1) 224 (3) 280
(2) -224 (4) -256
2669. Jen and her brother Kevin love to eat chocolate chip cookies from the jar in the kitchen. Every time Jen takes one, Kevin takes one right after her. Their mother tells them that whoever takes the last cookie will get in trouble. If there are 10 cookies in the jar, will Jen get in trouble if she eats the first cookie?
(1) No
 (2) Yes
2896. For their summer jobs, Bobby makes twice as much as Jon per hour. If Jon makes d dollars per hour, Bobby must make _____ dollars per hour.
 $2d$
2686. A survey was taken of 65 students to see if they preferred chocolate, vanilla, or strawberry ice cream. Twice as many students prefer chocolate to strawberry, while five more students prefer vanilla to strawberry. How many students prefer vanilla?
 (1) 15 (3) 25
(2) 20 (4) 30
2687. 4-year old Bill has a brother 3 times his age. In how many years will Bill be one half the age of his older brother?
 (1) 3 (3) 5
(2) 4 (4) 6
2690. There are 50 people involved in setting up the race. There are 10 more volunteers than paid workers at the race. What is the number of volunteers involved in the set up?
 (1) 10 **(3) 30**
 (2) 20 (4) 40
2691. Bob, Steve, and Tony all collect comic books. Bob has twice as many as Steve and Tony has 8 more than Bob. If they have 43 comic books between the three of them, how many does Tony have?
 (1) 14 (3) 7
 (2) 28 **(4) 22**
2692. Sandy has three times as many peaches as Smithers. If the combined cost of both of their peaches is \$56, and every peach costs \$2, how many peaches does Smithers have?
(1) 7 (3) 14
 (2) 21 (4) 28
2693. Babe plays softball twice a week. Each time she plays, she pitches 3.5 innings. If the season lasts 10 weeks, how many total innings will she pitch in the season?
 (1) 50 **(3) 70**
 (2) 60 (4) 80
2695. James is arranging two triangular tables to seat his friends. Each table can typically seat one friend on each side. If the tables are pushed together so they share one side, how many **fewer** seats are available?
 (1) 4 **(3) 2**
 (2) 3 (4) 1
2697. What is the sixth number in the pattern below?
 1.1, 1.8, 2.5, 3.2, 3.9,
 (1) 5.0 **(3) 5.3**
 (2) 5.2 (4) 5.6

1460. Which of the following is a factor of 21?
 (1) 2 (3) 9
(2) 7 (4) 42
1461. Which of the following is *not* a factor of 75?
 (1) 5 (3) 25
 (2) 15 **(4) 150**
1462. Which of the following is a common factor of 24 and 54?
 (1) 4 **(3) 6**
 (2) 5 (4) 8
1463. 5 and 7 are common factors for which number?
 (1) 20 **(3) 35**
 (2) 21 (4) 40
1464. Which of the following is *not* a factor of 63?
 (1) 3 (3) 9
 (2) 7 **(4) 18**
2143. Which of the following is *not* a factor of 18?
 (1) 2 **(3) 12**
 (2) 6 (4) 18
2144. Which of the following numbers is a factor of 45?
 (1) 2 **(3) 15**
 (2) 6 (4) 90
2145. What is a common factor of 24 and 60?
 (1) 48 **(3) 12**
 (2) 15 (4) 7
2146. What is a common factor of 75 and 20?
 (1) 2 **(3) 5**
 (2) 4 (4) 10
2147. Which of the following is *not* a common factor of 18 and 54?
 (1) 2 (3) 9
 (2) 6 **(4) 12**
2519. Which of the following numbers is divisible by both 4 and 5?
 (1) 24 (3) 85
 (2) 44 **(4) 100**
2607. Which of the following numbers is divisible by 4?
(1) 42,348 (3) 43,963
 (2) 41,842 (4) 44,534
2608. Which of the following numbers is divisible by 3?
 (1) 1,153 (3) 1,093
(2) 1,041 (4) 1,234

2613. Which of the following numbers has both 3 and 4 as factors?
 (1) 18 **(3) 36**
 (2) 21 (4) 40
2729. 345432 is divisible by
 (1) 2,3,4,5,6,8,9, and 10 (3) 2,3,4,6,8,9, and 10
(2) 2,3,4,6 and 8 (4) 2,3,4,5,6,8, and 9
2730. Write out the divisibility rule for 3.
If the sum of the digits of a number is divisible by 3, the number is divisible by 3.
2731. If a number is divisible by both 2 and 3, it is also divisible by
 (1) 9 **(3) 6**
 (2) 8 (4) 4
2732. A number is divisible by 10 if and only if
 (1) it is divisible by both 4 and 5
 (2) it is divisible by both 3 and 10
 (3) its last digit is a multiple of 5
(4) its last digit is a 0.
2733. A number is divisible by 4 if
 (1) the last digit is a 4
 (2) the last digit is divisible by 4
 (3) the sum of the digits is divisible by 4
(4) the number formed by the last two digits is divisible by 4
2734. A number is divisible by 8 if
 (1) the sum of the digits is divisible by 8
 (2) the number formed by the last two digits is divisible by 8
(3) the number formed by the last three digits is divisible by 8
 (4) the last digit is divisible by 8
2735. A number is divisible by 5 if
 (1) the last digit is 0 only.
(2) the last digit is either 5 or 0.
 (3) the number is divisible by 10.
 (4) the sum of the digits is divisible by 5.
2736. $3 \square 3,333$
 What values could be plugged in to the number above to ensure that it is divisible by 3?
 (1) 3 only (3) 0, 3
 (2) 3, 6, 9 **(4) 0, 3, 6, 9**
3140. Write out the divisibility rule for 3.
If the sum of the digits of a number is divisible by 3, the number is divisible by 3.

5. Compare Integers, Fractions, and Decimals

1453. What is the difference between $\frac{1}{4}$ and $\frac{1}{2}$?
- (1) There is no difference because they are equivalent fractions.
 - (2) $\frac{1}{2} < \frac{1}{4}$
 - (3) $\frac{1}{4} < \frac{1}{2}$**
 - (4) $\frac{1}{2}$ is four times larger than $\frac{1}{4}$.
1454. What is the relationship between 0.35 and 0.36 ?
- (1) $0.36 < 0.35$
 - (2) 0.35 is one tenth less than 0.36
 - (3) 0.35 is one hundredth greater than 0.36
 - (4) 0.35 is one hundredth less than 0.36**
2115. Which of the following fractions is equivalent to 0.75?
- (1) $\frac{1}{4}$
 - (2) $\frac{1}{2}$
 - (3) $\frac{3}{4}$**
 - (4) $\frac{5}{7}$
2116. Which decimal is equivalent to $\frac{1}{3}$?
- (1) 0.13
 - (2) 0.25
 - (3) 0.33**
 - (4) 0.50
2117. Which of the following fractions is not equivalent to 0.25?
- (1) $\frac{1}{4}$
 - (2) $\frac{2}{8}$
 - (3) $\frac{3}{9}$**
 - (4) $\frac{4}{16}$
2118. Which of the following numbers are displayed from smallest to largest?
- (1) $\frac{1}{5}$, 0.4, $\frac{3}{4}$**
 - (2) $\frac{3}{4}$, 0.4, $\frac{1}{5}$
 - (3) 0.4, $\frac{3}{4}$, $\frac{1}{5}$
 - (4) $\frac{1}{5}$, $\frac{3}{4}$, 0.4
2119. Which decimal is greater than $\frac{4}{5}$?
- (1) 0.55
 - (2) 0.75
 - (3) 0.80
 - (4) 0.95**

2125. How are 0.455 and 0.555 related?
- (1) 0.455 is one less than 0.555
 - (2) 0.455 is one tenth less than 0.555**
 - (3) 0.455 is one hundredth less than 0.555
 - (4) 0.455 is one thousandth less than 0.555
2126. What is the relationship between 1.50 and 3.60?
- (1) 3.60 is 2 greater than 1.50
 - (2) 1.50 is 2 and one hundredth less than 3.60
 - (3) 1.50 is 2 and one tenth less than 3.60**
 - (4) 3.60 is 2 and one thousandth greater than 1.50
2127. How are $\frac{1}{2}$ and $\frac{3}{8}$ related?
- (1) $\frac{1}{2}$ is less than $\frac{3}{8}$
 - (2) They are both greater than $\frac{7}{8}$
 - (3) $\frac{1}{2}$ is greater than $\frac{3}{8}$**
 - (4) They are equivalent fractions
2128. What is the relationship between 4.44 and 5.45?
- (1) 4.44 is 1 and 1 tenth less than 5.45
 - (2) 4.44 is 1 hundredth less than 5.45
 - (3) 4.44 is 1 and 1 hundredth less than 5.45**
 - (4) 5.45 is 1 and 1 thousandth greater than 4.44
2129. What is the relationship between $\frac{1}{3}$ and $\frac{2}{4}$?
- (1) $\frac{1}{3}$ is twice as large as $\frac{2}{4}$
 - (2) $\frac{2}{4}$ is greater than $\frac{1}{3}$**
 - (3) $\frac{2}{4}$ is twice as large as $\frac{1}{3}$
 - (4) They are equivalent fractions
2134. Which of the following fractions is equivalent to 30%?
- (1) $\frac{1}{3}$
 - (2) $\frac{30}{10}$
 - (3) $\frac{3}{10}$**
 - (4) $\frac{1}{10}$
2135. What is 0.45 written as a percentage?
- (1) 4.5%
 - (2) 0.45%
 - (3) 450%
 - (4) 45%**
2136. Which of the following is *not* equivalent to 20%?
- (1) $\frac{1}{5}$
 - (2) 0.20
 - (3) $\frac{2}{25}$**
 - (4) $\frac{20}{100}$

3. Patterns

C. Use Patterns and Functions to Represent and Solve Problems (*5)

1345. Brandy puts \$12 in the bank each week to save up for a new bicycle. If the bike costs \$199, how many weeks will it take her to have enough money for the bike?

- (1) 2
- (2) 12
- (3) 16
- (4) 17

Base your answers to questions 1346 through 1349 on the formula $T = 0.50m + 10$.

This formula represents the total cost of gas per m miles driven for Tony's car.

1346. What is the cost of gas if Tony's family drives 30 miles?

- (1) \$160
- (2) \$70
- (3) \$25
- (4) \$10

1347. Find the cost of gas if Tony drives 250 miles.

- (1) \$22.50
- (2) \$135
- (3) \$480
- (4) \$1,260

1348. How many miles did Tony's family drive if they spent \$260 on gas?

- (1) 540
- (2) 500
- (3) 135
- (4) 125

1349. If Tony's family drives 1,500 miles, what is the difference in price if he pays \$0.75 per mile?

- (1) They will pay \$1,490 more if they use the formula.
- (2) They will pay \$1,490 more if they pay \$.75 per mile.
- (3) They will pay \$365 less if they use the formula.
- (4) They will pay \$1,125 less if they pay \$.75 per mile.

2217. Susan earns \$8 per hour at the pet store. If she works 5 hours a day, 3 days a week, how long will it take her to earn \$720?

- (1) 3 weeks
- (2) 5 weeks
- (3) 6 weeks
- (4) 7 weeks

2218. Kyle needs \$175 to buy a dog. If his parents give him \$20 per week in allowance, how many weeks will it take him to earn enough money?

- (1) 8 weeks
- (2) 9 weeks
- (3) 10 weeks
- (4) 12 weeks

2219. Charlie earns \$5 for each house he shovels when it snows in the winter. How many houses must he shovel to earn enough money to buy a bike that costs \$99?

- (1) 18 houses
- (2) 19 houses
- (3) 20 houses
- (4) 21 houses

2756. Hailey has four times as many coins as Brandon. If Brandon has a coins, how many does Hailey have?

4a

2220. John has 150 dimes in his dime collection. How many more dimes must he find in order to have \$20?

- (1) 10 dimes
- (2) 50 dimes
- (3) 100 dimes
- (4) 200 dimes

2221. Cynthia received a score of 76 on her first math exam. She studied harder and received an 80 on her second exam and an 84 on her third exam. At this rate, on which exam will she receive a grade of 100?

- (1) 6th exam
- (2) 7th exam
- (3) 8th exam
- (4) 9th exam

2751. Jen has a certain number of apples. Her brother, Jack, has twice as many. If x represents the number of apples Jen has, how many apples does Jack have?

- (1) x
- (2) $2x$
- (3) $2 + x$
- (4) $x + 2x$
- (5) $4x$

2752. Barbara bought several pens. Mickey bought three more than twice the number of pens Barbara got. If x represents Barbara's pens, what expression shows how many pens Mickey has?

- (1) $2x + 3$
- (2) $2x - 3$
- (3) $2x + 2$
- (4) $x + 3$

2753. What expression can generate all even numbers? (Assume you are plugging in integral values for x)

- (1) $2x$
- (2) $2x + 1$
- (3) $2x - 1$
- (4) x^2

2754. What expression can generate all odd numbers? (Assume you are plugging in integral values for x)

- (1) $2x$
- (2) $2x + 1$
- (3) $x^2 + 1$
- (4) x^3

2755. Jameson has a certain number of garlic knots. If he eats two, what expression represents the number he has left?

- (1) $x - 2$
- (2) $x + 2$
- (3) $2x$
- (4) $2x + 1$

2757. Jackson bought seven erasers. If Jen has two less than Jackson, which equation would be used to solve for the number of Jen's pens?

- (1) $7 = x + 2$
- (2) $x - 2 = 7$
- (3) $x + 7 = 2$
- (4) $x = 7$

2890. Steven wants to buy a computer game and a bicycle. If the computer game costs half as much as the bicycle and the cost of the computer game is represented by x , what expression correctly identifies the cost of the bicycle?

2x

3. Conclusions Through Logical Reasoning

A. Use Reasoning to Study Mathematical Scenarios

337. It is possible to create a triangle with an area greater than 1,000,000,000 cm² but with a height less than 0.00001 cm?
(1) True
 (2) False
409. It takes a boat twenty minutes to go one mile down stream. The same boat makes the trip upstream in 40 minutes. How long would it take an un-powered raft to make the trip?
(1) 20 minutes (3) 60 minutes
 (2) 40 minutes (4) 10 minutes
509. Ms. Wang divided her students into groups of seven for a classroom activity. There were two students left over. Which of the following could be the number of students in Ms. Wang's class?
 (1) 10 (3) 17
(2) 14 **(4) 23**
510. Mr. Silverman divided his students into groups of six for a classroom activity. There were two students left over. Which of the following could be the number of students in Mr. Silverman's class?
 (1) 11 (3) 36
(2) 20 (4) 45
511. Mr. Burton divided the students in his class into groups of four. There were three students left over. Which of the following could be the number of students in Mr. Burton's class?
 (1) 29 (3) 38
(2) 35 (4) 42
574. Ethan wants to use ready made 6-foot long fence sections for his yard. His yard measures 31 feet long by 35 feet wide. How many fence sections would he need to surround his yard?
(1) 22 (3) 160
 (2) 30 (4) 180
575. There are 29 members of the math class who are going on a field trip. Each van can hold up to 6 students. How many vans will be needed to safely carry all of the students?
 (1) 4 (3) 4.83
(2) 4.5 **(4) 5**
576. Talia is thinking of a number in her head. If she subtracts 6 from her number and divides the resulting number by 7, she gets 4. What is the original number?
 (1) 22 **(3) 34**
 (2) 28 (4) 40

577. Brad is thinking of a number. If he adds 5 to the number and divides the resulting number by 3, he will get 14. What is the original number? **(*5)**
 (1) 35 (3) 42
(2) 37 (4) 47
578. Jeanette is thinking of a number. If she multiplies the number by 8 and subtracts 3 from the resulting number, the result is 29. What is the original number?
(1) 4 (3) 6
 (2) 5 (4) 7
579. Miguel is thinking of a number. If he multiplies the number by 10 and adds 2 to the resulting number, the result is 7. What is the original number?
 (1) $\frac{1}{4}$
(2) $\frac{1}{2}$
 (3) 1
 (4) 2
580. Alfonso is thinking of a number. If he divides the number by 4 and adds 3.75 to the resulting number, the result is 4. What is the original number?
 (1) $\frac{1}{3}$
 (2) $\frac{1}{2}$
(3) 1
 (4) 2
581. Harvey is thinking of a number. If he subtracts 10 from his number and multiplies the resulting number by 6, the result is -24. What is the original number?
 (1) 2 **(3) 6**
 (2) 4 (4) 8
582. Gabriel is thinking of a number. If he multiplies the number by 3 and adds 4, the result is -17. What is the original number?
 (1) -9
(2) -7
 (3) -4
 (4) $\frac{13}{3}$
586. Which can be used to find the missing number in the number sentence below?
 $3 \times \square = 42$
 (1) 42×3 (3) $42 - 3$
 (2) $3 \div 42$ **(4) $42 \div 3$**
2972. Do two different rectangles with the same perimeter necessarily have the same area?
No