



QUESTION CATALOGUE

# Math 8

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**C. Operations**

**a. Estimation**

1430. A model of a car was built on a scale of 1 millimeter = 5 centimeters. The length of the model measured 800 millimeters. Estimate the actual length of the car.

- (A) 40 cm (C) **400 cm**  
 (B) 160 cm (D) 800 cm

1431. Melanie bought a house that cost \$125,000. The down payment was \$39,587. Estimate how much she owed for the car after paying the down payment.

- (A) \$45,000 (C) **\$85,000**  
 (B) \$65,000 (D) \$90,000

1435. Which of the following measurements best estimates the weight of a baby?

- (A) **3.5 kg** (C) 350 kg  
 (B) 35 kg (D) 3,500 kg

1453. Base your answer to the following question on the following information. Lincoln Middle School had a fundraiser in which students collected as many pennies as possible.

**Grade 6**

Week	Number of Pennies
1	1083
2	1180
3	1240

**Grade 7**

Week	Number of Pennies
1	1572
2	1303
3	1421

**Grade 8**

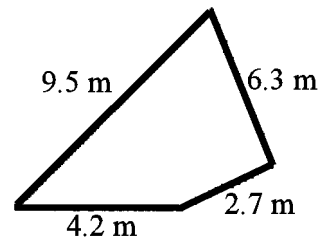
Week	Number of Pennies
1	1521
2	1102
3	1201

Estimate the total number of pennies collected by the grades in this period of time. Show your work

1528. What is the best estimate of the cost of 1 hot dog if 8 hot dogs cost \$2.33?

- (A) \$0.20 (D) **\$0.30**  
 (B) \$0.24 (E) \$0.40  
 (C) \$0.25

1530. Kim must rope off a garden plot. To estimate the length of rope needed, she correctly rounded each of the given distances to the nearest meter and then added the distances. Which of the following equations shows Kim's work?

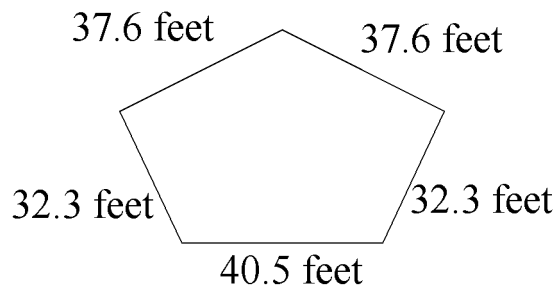


- (A)  $4 + 2 + 6 + 9 = 21$  (D)  $5 + 3 + 6 + 10 = 24$   
 (B)  $4 + 3 + 6 + 9 = 22$  (E)  $5 + 3 + 7 + 10 = 25$   
 (C)  **$4 + 3 + 6 + 10 = 23$**

1580. How many buses must be ordered to take 90 band students to the football game? Each bus can only hold 25 students.

- (A) 2 buses (D) 5 buses  
 (B) 3 buses (E) 6 buses  
 (C) **4 buses**

1586. Steven roped off the foundation for the new house he is going to build. To estimate the length of the rope needed, he correctly rounded each of the given distances to the nearest foot and then added the distances. Which of the following equations shows Steven's work?



- (A)  $32 + 32 + 37 + 37 + 41 = 179$   
 (B)  $32 + 32 + 38 + 38 + 40 = 180$   
 (C)  **$32 + 32 + 38 + 38 + 41 = 181$**   
 (D)  $33 + 33 + 38 + 38 + 41 = 183$

1660. There are 237 students attending PS High School. The total number of brownies the cafeteria sells in a given year is 2,538. Approximately how many brownies does each student eat per year on average.

- (A) **10** (C) 62.5  
 (B) 17 (D) 100

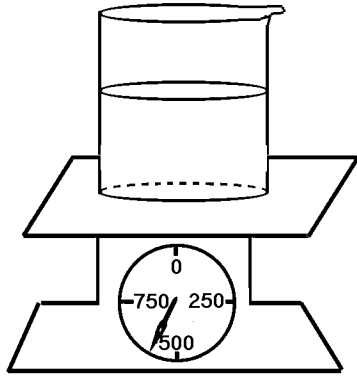
1885. A stadium seats 48,793 people. What is this number rounded to the nearest thousand?

- (A) 40,000 (C) **49,000**  
 (B) 48,000 (D) 50,000

**II. MEASUREMENT**  
**B. Direct and Indirect Measures**

**1. Estimation and Identification**  
**a. Weight and mass**

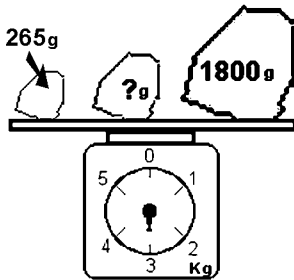
550. Base your answer on the diagram below



A student is doing an experiment on evaporation. He originally measured the beaker and water as having a mass of 800 grams. About how much water has evaporated since?

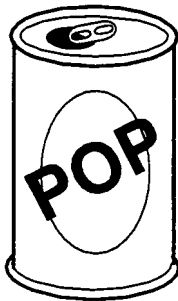
- (A) 110 g (C) 560 g  
 (B) 210 g (D) 800 g

839. How much must the middle rock on the scale weigh?



- (A) 935 grams (C) 2,065 grams  
 (B) 1,200 grams (D) 3,000 grams

1359. A regular can of pop holds about

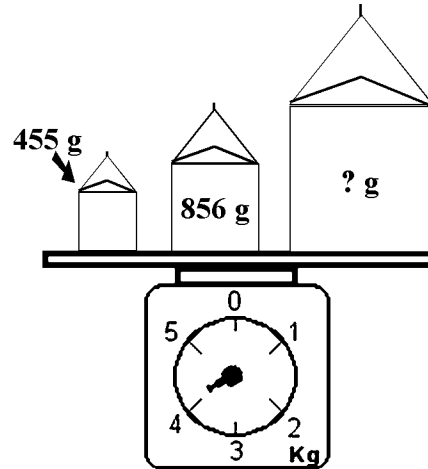


- (A) 1 ounce. (C) 1 quart.  
 (B) 1 pint. (D) 1 gallon.

2607. A cup of water weighs approximately

- (A) 0.05 pounds (C) 5 pounds  
 (B) 0.5 pounds (D) 50 pounds

842. How much must the largest milk carton on the scale weigh?



- (A) 401 (C) 2,689  
 (B) 1311 (D) 3,500

2608. An average car weighs approximately

- (A) 20 pounds (C) 2,000 pounds  
 (B) 200 pounds (D) 20,000 pounds

2609. A pen weighs approximately

- (A) 0.1 grams (C) 100 grams  
 (B) 10 grams (D) 1,000 grams

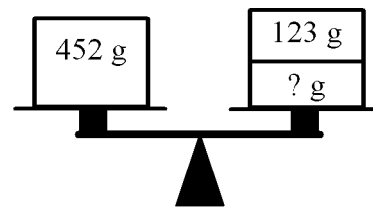
2610. A standard brick weighs approximately

- (A) 0.05 pounds (C) 5 pounds  
 (B) 0.5 pounds (D) 50 pounds

3129. An average cat weighs approximately

- (A) 1.2 pounds (C) 120 pounds  
 (B) 12 pounds (D) 1,200 pounds

3130. Base your answer to the following question on the diagram of a balance below.



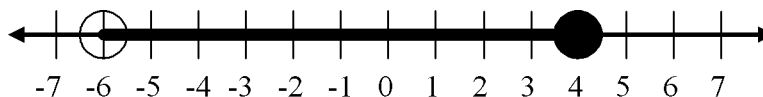
How much does the unknown box weigh?

- (A) 575 g (C) 329 g  
 (B) 320 g (D) 584 g

A. Number Line Graphing

a. Graphing specific points

2931. Base your answer to the following question on the number line below.



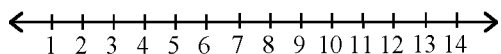
Which inequality is represented above?

- (A)  $-6 < x < 4$
- (B)  $-6 \leq x < 4$
- (C)  $4 < x \leq 6$
- (D)  $-6 < x \leq 4$

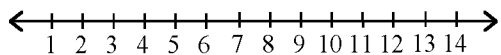
62. A) Create a number line on your paper and plot the following points:  $0.5, \frac{3}{4}$

63. A) Create a number line on your paper and plot the following points:  $0.3, \frac{2}{5}$

192. Graph the inequality  $2 \leq x < 10$  on the following number line.



236. Graph the inequality  $4 < x \leq 11$ .

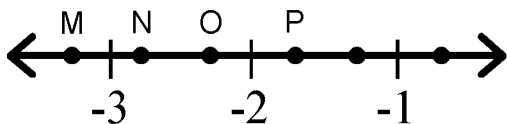


282. Which inequality is represented below?



- (A)  $-1 < x < 3$
- (B)  $-1 \leq x < 3$
- (C)  $-1 < x \leq 3$
- (D)  $-1 \leq x \leq 3$

Base your answers to questions 659 and 660 on the number line below.



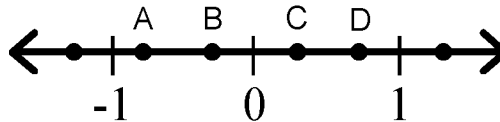
659. Which point best represents  $-2\frac{2}{3}$ ?

- (A) M
- (B) N
- (C) O
- (D) P

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

- (A) M
- (B) N
- (C) O
- (D) P

Base your answers to questions 661 and 662 on the number line below.



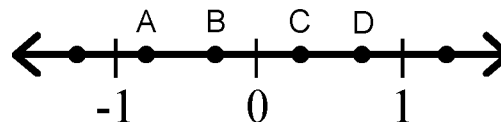
661. Which point best represents  $\frac{1}{3}$ ?

- (A) A
- (B) B
- (C) C
- (D) D

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

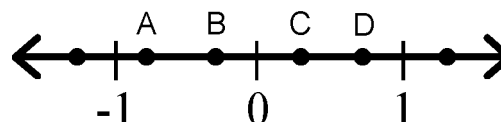
- (A) A
- (B) B
- (C) C
- (D) D

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



- (A) A
- (B) B
- (C) C
- (D) D

698. Which point on the number line below could represent  $|-0.2|$ ?



- (A) A
- (B) B
- (C) C
- (D) D

# VII. PATTERNS AND FUNCTIONS

# 1. Numerical and Geometric Patterns

## A. Patterns: Identification, Representation

## a. Numeric

2923. Base your answer to the following question on the table below which shows the weekly profits of the Snack Shack.

WEEKLY PROFITS	
Week	Profits
1	\$430
2	\$360
3	\$390
4	\$400

At the rate shown in the table above, how many more weeks will it take for the total profits to reach \$5,000.

Explain your answer.

**Average weekly profits: \$395. Current profit total: \$1580, \$3420 remaining to earn. It will take 8.65 weeks, or 9 weeks to reach \$5,000.**

3047. Vincent collects marbles as a hobby. The table below shows the number of marbles in his collection over a 4 week period.

Week	Marbles
1	54
2	72
3	90
4	108

At this rate, how many marbles will Vincent have in Week 6?

- (A) 126 marbles                      (C) 108 marbles  
**(B) 144 marbles**                      (D) 162 marbles

3052. Which number  $X$  fits the following pattern?

3, 12,  $X$ , 30, 39

- (A) 9                                      (C) 48  
**(B) 21**                                      (D) 24

3054. The students at Boone Middle School are planting trees in a pattern in their courtyard. The first row will have 3 trees, the second row will have 7 trees, and the third row will have 11 trees. If the pattern continues, how many trees will be in the sixth row?

- (A) 15 trees                              (C) 19 trees  
**(B) 23 trees**                              (D) 27 trees

3051. The table below shows the price of video games at Evan's Video Palace.

Number of Games	Price
1	\$24
2	\$38
3	\$42
4	\$56
5	\$80
6	\$94

At this rate, how much will 10 games cost?

- (A) \$108                                      (C) \$136  
 (B) \$122                                      **(D) \$150**

3053. The table below shows the number of airplanes at a local Air Show for the past five years.

Year	Number of Airplanes
1998	43
1999	52
2000	61
2001	70
2002	79

At this rate of growth, how many airplanes will there be at the 2003 Air Show?

- (A) 80 airplanes                              **(C) 88 airplanes**  
 (B) 85 airplanes                              (D) 89 airplanes

3055. Jennie's digital clock is not working properly. Instead of counting the seconds: 1, 2, 3, 4, it counts the seconds: 1, 4, 7, 11. If the clock currently says 4:03:29, what will it read in 9 seconds?

- (A) 4:03:38                                      **(C) 4:03:56**  
 (B) 4:03:47                                      (D) 4:04:05

3194. What is the next number in this sequence?

12 60 300 1,500 \_\_\_\_\_

- (A) 2,000                                      **(C) 7,500**  
 (B) 5,750                                      (D) 7,575