Grade 5 - Math Sample Items
Grade Level: Grade 5
Common Core Standard: 5.G.A.1: Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
DOK Level: 1
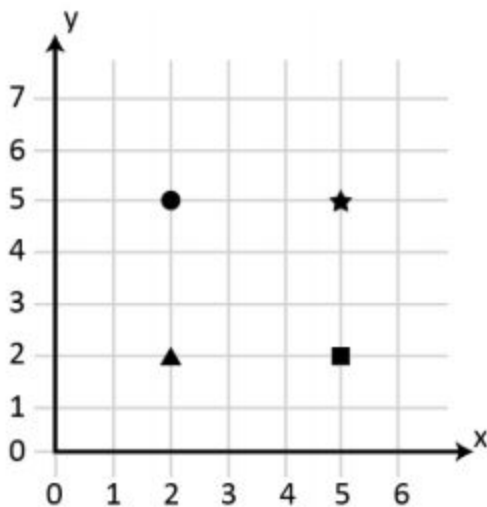
Which object is located at the point (2, 5)?
A. circle
B. square
C. star
D. triangle

A. Correct.
B. The student switched the x- and y-coordinates.
C. The student used the given y-coordinate, 5, for both coordinates.
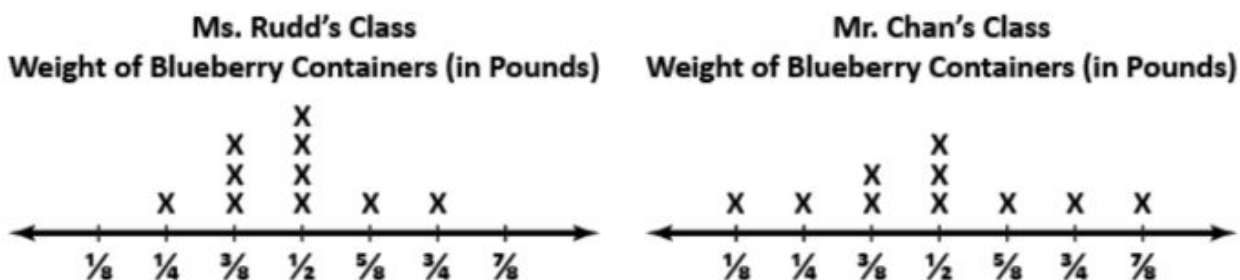D. The student used the given x-coordinate, 2, for both coordinates.

Grade Level: Grade 5
Common Core Standard: 5.MD.B.2: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total

amount in all the beakers were redistributed equally.
DOK Level: 3

Ms. Rudd's class and Mr. Chan's class went blueberry picking. Each student collected blueberries in his or her own container. When the students finished, each container was weighed. Each class will combine their blueberries and divide them equally between the students in that class. The line plots show the results of each class's picking.

Ms. Rudd's Class
Weight of Blueberry Containers (in Pounds)

```
                    X
            X       X
            X       X
        X   X   X   X   X   X
    <---+---+---+---+---+---+---+--->
        ⅛   ¼   ⅜   ½   ⅝   ¾   ⅞
```

Mr. Chan's Class
Weight of Blueberry Containers (in Pounds)

```
                        X
                X       X
        X   X   X   X   X   X   X
    <---+---+---+---+---+---+---+--->
        ⅛   ¼   ⅜   ½   ⅝   ¾   ⅞
```

Based on the line plots, which statement is true?
A. Mr. Chan's class has more students than Ms. Rudd's.
B. Ms. Rudd's class collected more blueberries than Mr. Chan's.
C. Mr. Chan's students will each get more blueberries than Ms. Rudd's.
D. Ms. Rudd's students had more containers weighing over $\frac{1}{2}$ pound than Mr. Chan's.

A. Students may see that Mr. Chan's class has an X over $\frac{7}{8}$ and interpret this as more than Ms. Rudd's; however, this number refers to weight rather than to the number of students.
B. Students may interpret the greater height of Ms. Rudd's line plot to mean that her students collected more; however, the height refers to the number of students.
C. Correct.
D. Students may interpret this statement as referring to the number of Xs above the number $\frac{1}{2}$ in the line plot. However, Mr. Chan's group actually had more containers weighing more than $\frac{1}{2}$ pound.

Grade Level: Grade 5
Standard: 5.NF.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.

DOK Level: 2
Alice, Duane, Kim, and Pedro are ordering pizza together. Each student tells the others how much pizza he or she plans to eat.

Alice	3/8 of a pizza
Duane	2/3 of a pizza
Kim	7/12 of a pizza
Pedro	1/3 of a pizza

The students want to order enough pizza for everyone but do not want to order too much. How many pizzas should they order?
A. 1
B. 2
C. 3
D. 4

A. The student added the fractions incorrectly as $\frac{3}{8}+\frac{2}{3}+\frac{7}{12}+\frac{1}{3}=\frac{3+2+7+1}{8+3+12+3}=\frac{13}{26}=\frac{1}{2}$ and rounded up to 1.

B. Correct.

C. The student attempted to mentally estimate the total. The student correctly saw that $\frac{1}{3}+\frac{2}{3}=1$; however, the student mentally estimated $\frac{3}{8}+\frac{7}{12}>1$, which is incorrect.

D. The student chose 4 pizzas for 4 students.