

Directions: Answer the following question(s).

- 1 Felicia bought three movies for \$9.98 each. She also bought one movie that cost half of the total of the first three movies. What is the total amount that Felicia spent?

- A. \$14.97
 B. \$29.94
 C. \$34.90
 D. \$44.91

Master ID: 3284109 Revision: 1
 Correct: D
 Rationale:
 A. Student(s) may have found half of the total of the first three movies, but did not remember to add this to the total.
 B. Student(s) may have found only the total of the first three movies, and did not find or add to this the cost of the fourth movie.
 C. Student(s) may have misread the problem and thought that the fourth movie cost half of \$9.98 instead of half of \$29.94.
 D. Correct answer
 Rubric: 1 Point(s)
 Standards:
 7.NS.A.2.c

- 2 Solve and simplify.

$$\frac{2}{7} \div \frac{4}{5} =$$

- A. $\frac{2}{7}$
 B. $\frac{8}{35}$
 C. $\frac{10}{28}$
 D. $\frac{5}{14}$

Master ID: 3283245 Revision: 1
 Correct: D
 Rationale:
 A. Student(s) may not have known how to proceed and guessed.
 B. Student(s) may not have remembered to take the reciprocal before multiplying.
 C. Student(s) may not have realized that this answer can be simplified.
 D. Correct answer
 Rubric: 1 Point(s)
 Standards:
 7.NS.A.2.c

Directions: Answer the following question(s).

3 Convert the fraction to a decimal:

$$\frac{38}{333}$$

- A. $1.\overline{141}$
- B. $0.\overline{114}$
- C. $0.\overline{0114}$
- D. 0.114

Master ID: 3280405 Revision: 1
 Correct: B
 Rationale:
 A. Student(s) may have placed the decimal in the wrong place.
 B. Correct answer
 C. Student(s) may have placed the decimal in the wrong place.
 D. Student(s) may have forgotten to put the bar notation to show that the decimal is repeating.
 Rubric: 1 Point(s)
 Standards:
 7.NS.A.2.d

4 Convert the fraction to a decimal:

$$\frac{12}{111}$$

- A. $0.\overline{0108}$
- B. $1.\overline{08}$
- C. 9.25
- D. $0.\overline{108}$

Master ID: 3280387 Revision: 1
 Correct: D
 Rationale:
 A. Student(s) may have placed the decimal in the wrong place.
 B. Student(s) may have placed the decimal in the wrong place.
 C. Student(s) may have set up division problem incorrectly and divided 12 into 111 instead.
 D. Correct answer
 Rubric: 1 Point(s)
 Standards:
 7.NS.A.2.d

5 Find the quotient in SIMPLEST form:

$$\frac{1}{2} \div \frac{1}{3} =$$

- A. $\frac{3}{2}$
- B. $1\frac{1}{2}$
- C. $\frac{2}{5}$
- D. $\frac{1}{6}$

Master ID: 3280306 Revision: 1
 Correct: B
 Rationale:
 A. Student(s) may have correct answer however student may not have simplified the answer.
 B. Correct answer
 C. Student(s) may have added the denominators and numerators together.
 D. Student(s) may have multiplied the numerators and denominators without inverting the second fraction.
 Rubric: 1 Point(s)
 Standards:
 7.NS.A.2.c

Directions: Answer the following question(s).

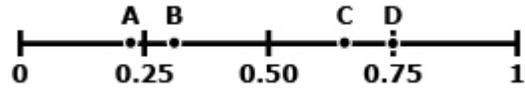
- 6 Aaron works $3\frac{1}{2}$ hours every Saturday. Every four weeks he gets paid at a rate of \$7.25 an hour. He just got a raise of an extra \$1.00 per hour.

How much will his paycheck be after the next four weeks?

- A. \$95.70
- B. \$101.50
- C. \$108.90
- D. \$115.50

Master ID:	3278202	Revision:	1
Correct:	D		
Rationale:			
A.	Student(s) may have mistakenly represented the time (3 hours and 30 minutes) as 3.30 and may have forgotten to add in the raise.		
B.	Student(s) may have forgotten to add in the raise, or student(s) may have simply multiplied all the numbers together.		
C.	Student(s) may have mistakenly represented the time (3 hours and 30 minutes) as 3.30.		
D.	Correct answer		
Rubric:	1 Point(s)		
Standards:	7.NS.A.2.c		

- 7 Find the approximate location of the decimal form of $\frac{2}{3}$ on the number line below.



- A. A
- B. B
- C. C
- D. D

Master ID:	3276490	Revision:	1
Correct:	C		
Rationale:			
A.	Student(s) may have used the 2 and 3 from the fraction to form the decimal 0.23.		
B.	Student(s) may have found the location for $\frac{1}{3}$ instead of $\frac{2}{3}$.		
C.	Correct answer		
D.	Student(s) may have confused $\frac{2}{3}$ with $\frac{3}{4}$.		
Rubric:	1 Point(s)		
Standards:	7.NS.A.2.d		

Directions: Answer the following question(s).

8 At 5:00 a.m., a parking lot had 16 cars already parked in it. Throughout the course of the day, 48 more cars entered and parked in the parking lot. Which situation would result in a difference of 0 for the cars exiting the lot for the day?

- A. 16 cars exit the parking lot
- B. 32 cars exit the parking lot
- C. 48 cars exit the parking lot
- D. 64 cars exit the parking lot

Master ID: 3223068 Revision: 1

Correct: C

Rationale:

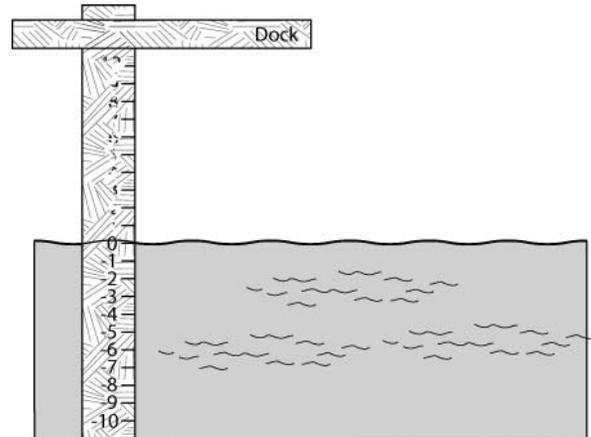
- A. Student(s) may have thought that since the lot started with 16 cars, only 16 cars needed to exit.
- B. Student(s) may have thought that since the lot has 64 cars in it, only half of the cars need to exit so that the net change is 0.
- C. Correct answer
- D. Student(s) may have thought that a net change of 0 cars means that the parking lot needed to be empty. Student(s) may have then concluded that all 64 cars needed to exit.

Rubric: 1 Point(s)

Standards:

7.NS.A.1.a

9 Jennie is visiting the lake with her family. One of the piers under the dock has been marked at one-inch intervals, with 0 at the water level and marks to -10 below the surface. Jennie notices that the numbers beside the marks above the water have been worn away. The pier is shown below.



A. What is the highest number on the pier and what does it represent? Explain your answer using the given information about the markings on the pier.

Jennie is playing with an inflatable beach ball. She pushes the ball into the water until the top of the ball is at the -6 -inch mark on the pier, and then lets it go. The ball pops out of the water, and the top reaches the height of the 9th mark above the water surface on the pier before it rests on the surface.

B. What is the total distance between the lowest and highest points of the ball? Explain your answer, and show all work to support the explanation.

Jennie's brother Benji pushes the ball down under the water and then lets it go. The ball pops out of the water, and the top reaches the height of the 7th mark on the pier before it rests. Benji tells Jennie that his ball traveled a greater distance than Jennie's ball traveled as described in part B.

C. Assuming that Benji is correct, give a possible value for the depth of the top of the ball before Benji released it. Explain your answer, and include a mathematical expression that proves your answer is correct.

Directions: Answer the following question(s).

Master ID: 2113238 Revision: 4

Rubric: 4 Point(s)

- 4 The response demonstrates a high level of understanding. A level 4 response is characterized by:
- Correct answer for part A, namely +10, or equivalent;
 - A correct explanation for part A, similar to "The highest mark on the pier is the same distance from the surface, 0, as the -10 mark shown below the surface. Therefore, the top number should be the opposite of -10. A number and its opposite must sum to 0. Since $-10 + 10 = 0$, the number at the top mark on the pier must be 10";
 - A correct answer for part B, namely 15 inches;
 - A correct explanation for part B, similar to "The ball started at -6 inches and rose to the 9th mark on the pier, which represents 9 inches. The distance between these two points is the absolute value of their difference, or $|-6 - 9| = |-15| = 15$ inches";
 - A correct answer for part C, namely any value less than -8;
 - A correct explanation for part C, similar to "Jennie's ball traveled a distance of 15 inches, so Benji's ball must have traveled farther than that. The top of the ball rises to the 7th mark, or 7 inches. If it started at -8 inches, this would represent a change of $|-8 - 7| = |-15| = 15$ inches. But Benji's ball traveled further than Jennie's, so it must have started lower than hers, at -8.5 inches ($|-8.5 - 7| = |-15.5| = 15.5$) or -10 inches ($|-10 - 7| = |-17| = 17$), or any value lower than -8 inches."
- 3 The response demonstrates a strong understanding, but the work contains minor errors. A level 3 response is characterized by:
- An answer for part A that is correct or completely consistent with errors in the shown work/explanation;
 - Work or explanation for part A that shows strong understanding but may be incomplete or contain 1-2 minor errors;
 - An answer for part B that is correct or completely consistent with errors in the shown work/explanation;
 - Work or explanation for part B that shows strong understanding but may be incomplete or contain 1-2 minor errors;
 - An answer for part C that is correct or completely consistent with errors in the shown work/explanation;
 - Work or explanation for part C that shows strong understanding but may be incomplete or contain 1-2 minor errors.

Directions: Answer the following question(s).

2 The response demonstrates a basic but incomplete understanding. A level 2 response is characterized by:

- An answer and explanation/work for part A that show basic understanding but may contain multiple errors or omissions;
- An answer and explanation/work for part B that show basic understanding but may contain multiple errors or omissions;
- An answer and explanation/work for part C that show basic understanding but may contain multiple errors or omissions.

1 The response demonstrates minimal understanding. A level 1 response is characterized by:

- An answer and explanation for part A that show little or no understanding;
- An answer and explanation for part B that show little or no understanding;
- An answer and explanation for part C that show little or no understanding.

0 The response is completely incorrect, there is no response, or the response is off topic.

Standards:

7.NS.A.1

10 Kareem has a total of \$123 saved.

Which situations will result in Kareem having no money left in savings? Choose ALL that are correct.

- A. Kareem saves an additional \$123.
- B. Kareem spends \$100 of his savings and then saves an additional \$23.
- C. Kareem spends \$41 from his savings each of the next three weekends.
- D. Kareem saves an additional \$19 and then spends \$142 of his savings.
- E. Kareem spends \$67 of his savings and then spends an additional \$56 of his savings.

Master ID: 501127 Revision: 2

Correct: CDE

Rationale:

- A. This answer results from confusion about the fact that opposite quantities combine to make zero, not identical quantities.
- B. This answer results from not realizing that these actions have a net change of $-\$100 + \$23 = \$77$, not $-\$123$.
- C. Kareem spends a total of $3(\$41) = \123 . Since he began with \$123, he now has no money left in savings: $\$123 + (-\$123) = 0$.
- D. Kareem saves an additional \$19, so he has a total of $\$123 + \$19 = \$142$ in savings. He then spends \$142, leaving him with no money in savings: $\$142 + (-\$142) = 0$.
- E. Kareem spends a total of $\$67 + \$56 = \$123$. Since he began with \$123, he now has no money left in savings: $\$123 + (-\$123) = 0$.

Rubric: 1 Point(s)

Standards:

7.NS.A.1.a

Directions: Answer the following question(s).

- 11 Charlie went to the grocery store to buy sugar for the 4 batches of cookies that he is baking. He added up the sugar needed for the 4 batches and got the sum $6\frac{1}{6}$ cups. Which expression can represent the addition Charlie did to find the total amount of sugar?

- A. $1\frac{1}{2} + 1\frac{1}{2} + 1\frac{1}{2} + 1\frac{1}{2}$
 B. $1\frac{2}{3} + 1\frac{1}{4} + 1\frac{3}{4} + 1\frac{1}{2}$
 C. $1\frac{2}{3} - 1\frac{1}{4} - 1\frac{3}{4} - 1\frac{1}{2}$
 D. $1\frac{1}{2} + 1\frac{1}{3} + 1\frac{1}{6} + 1\frac{1}{6}$

Master ID: 306507 Revision: 3
 Correct: B
 Rationale:
 A. This answer adds up to 6, and assumes all 4 batches are identical.
 B. This adds up to $6\frac{1}{6}$.
 C. This is the result of performing the wrong operation.
 D. This sums to $5\frac{1}{6}$ instead of $6\frac{1}{6}$.
 Rubric: 1 Point(s)
 Standards:
 7.NS.A.1

- 12 In the middle of the afternoon, the temperature outside was 0°F . An hour later, the temperature had decreased by 12°F . An hour after that, the temperature had decreased by another 4°F . What increase in temperature is needed to return to the original temperature of 0°F ?

- A. 4°F
 B. 8°F
 C. 12°F
 D. 16°F

Master ID: 306513 Revision: 3
 Correct: D
 Rationale:
 A. This is the result of considering the second decrease in temperature only.
 B. This is the difference of the two separate temperature changes ($12 - 4$).
 C. This is the result of considering the first decrease in temperature only.
 D. The final temperature is -16°F . The temperature must then increase by 16 degrees to get back to 0°F degrees.
 Rubric: 1 Point(s)
 Standards:
 7.NS.A.1.a

Directions: Answer the following question(s).

- 13 A group of hummingbirds sipped 4 ounces of nectar during a 2-day time period. Over the next 8 days, Julie added $\frac{1}{2}$ ounce of nectar per day to the feeder. What was the overall change in the nectar level in the feeder?

- A. 4 ounces
 B. $\frac{1}{2}$ ounce
 C. 0 ounces
 D. 8 ounces

Master ID: 306514 Revision: 3

Correct: C

Rationale:

- A. This is either the amount of nectar consumed or the amount of nectar added, but not the overall change to the nectar level in the feeder.
 B. This is the daily rate of nectar addition, which contributes to the overall nectar change in the feeder but does not account for the overall nectar totals.
 C. Since the hummingbirds consumed 4 ounces, Julie added $8(0.5) = 4$ ounces. These quantities combine to make zero.
 D. This represents the total amount of nectar mentioned in the stem: the amount consumed (4) plus the amount added (8×0.5).

Rubric: 1 Point(s)

Standards:

7.NS.A.1.a

- 14 Jaime hiked for 3 days across an island. He started at the shoreline, which is at an elevation of 0 feet.

- At the end of day 1, Jaime had gained 2,150 feet in elevation.
- At the end of day 2, he had gained an additional 1,970 feet in elevation.

On day 3, Jaime hiked down to the shoreline on the other side of the island, which is also at an elevation of 0 feet. How many feet in elevation did he lose on day 3?

- A. 1,970 feet
 B. 2,060 feet
 C. 2,150 feet
 D. 4,120 feet

Master ID: 306512 Revision: 3

Correct: D

Rationale:

- A. This is the change in elevation on the second day.
 B. This is the average of the change in elevation over the first two days.
 C. This is the change in elevation on the first day.
 D. This is equal to the total increase in elevation over the first two days. The decrease to get back to 0 feet elevation must be the same.

Rubric: 1 Point(s)

Standards:

7.NS.A.1.a

Directions: Answer the following question(s).

- 15 Justine is not given the value of x or y , but she knows that the ratio $\frac{x}{y}$ is defined as a rational number. Which can be possible values for $\frac{x}{y}$?

Select all that apply.

- A. 0.428571428571...
- B. 1.732050807568...
- C. 2.828427124746...
- D. 5.031250
- E. 6.283185307179...

Master ID: 2113321 Revision: 1

Correct: AD

Rationale:

- A. The decimal form of a rational number terminates in 0s or eventually repeats. Since this decimal repeats the pattern "428571," it represents a rational number and could be the value of x/y . This is the decimal form of $3/7$.
- B. This answer results from not understanding that the decimal form of a rational number terminates in 0s or eventually repeats. This is the decimal form of radical 3, an irrational number.
- C. This answer results from not understanding that the decimal form of a rational number terminates in 0s or eventually repeats. This is the decimal form of radical 8, an irrational number.
- D. The decimal form of a rational number terminates in 0s or eventually repeats. Since this decimal terminates in 0 it represents a rational number and could be the value of x/y . This is the decimal form of $5 \frac{1}{32}$.
- E. This answer results from not understanding that the decimal form of a rational number terminates in 0s or eventually repeats. This is the decimal form of 2π , an irrational number.

Rubric: 1 Point(s)

Standards:
7.NS.A.2.d

- 16 In the expression below, p and q are integers.

$$\frac{p}{q}$$

If the expression is written as a decimal number, which of the following is NOT possible?

- A. The decimal number has 8 digits after the decimal point, then stops.
- B. The decimal number has 2 digits after the decimal point, then stops.
- C. The decimal number goes on forever with a repeating pattern of digits.
- D. The decimal number goes on forever without a repeating pattern of digits.

Master ID: 2189832 Revision: 3

Correct: D

Rationale:

- A. This answer results from thinking that a rational number cannot have so many digits.
- B. This answer results from thinking that a terminating decimal cannot be rational.
- C. This answer results from thinking that an infinite decimal cannot be rational.
- D. If p and q are integers, p/q is a rational number, but a decimal that goes on forever without a repeating pattern of digits represents an irrational number.

Rubric: 1 Point(s)

Standards:
7.NS.A.2.d

17

Web Only Interaction

Web Only Interaction

Web Only Interaction

Web Only Interaction

Master ID: 3299853 Revision: 1

Rubric: 4 Point(s)

Standards:
7.NS.A.2.c