THIRD SPACE LEARNING

4th Grade NY State Practice Math Test

New York Practice Test Grade 4

Grade 4

Questions

Name: ..... Class: .....

Date: ..... Score: .....

SESSION 1:
30 Multiple Choice

Standard: 4.NBT.2a
DOK 1

1 Which one represents the expansion of 810,402

A. 800,000 + 10,000 + 4000 + 20
B. 800,000 + 1,000 + 400 + 2
C. 800,000 + 10,000 + 4000 + 2
D. 800,000 + 10,000 + 400 + 2

Standard: 4.OA.1
DOK 2

2 Which situation could represent the equation, 7x 3 = 21 ?

A. Jules walks 7 miles. Roz walks 3 times as many miles as Jules.
B. Jules walks 7 miles. Roz walks 3 miles more than Jules.
C. Jules walks 7 miles. Roz walks 3 more than 7 times Jules' distance.
D. Jules walks 7 miles. Roz walks 3 miles less than Jules.

Standard: 4.NBT.5
DOK 1

3 What is the product of 521 and 8?

A. 4178
B. 4518
C. 4158
D. 4168

Standard: 4.NF.3c
DOK 1

4 Which improper fraction is equivalent to $4\frac{2}{5}$?

A. $\frac{22}{5}$
B. $\frac{21}{5}$
C. $\frac{20}{5}$
D. $\frac{11}{5}$

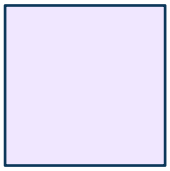
Standard: 4.G.2a
DOK 2

5 Which statement is true about an obtuse triangle?

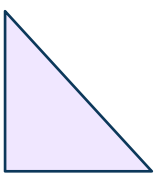
A. The triangle has three acute angles.
B. The triangle has three obtuse angles
C. The triangle has exactly one obtuse angle.
D. The triangle has exactly one right angle.

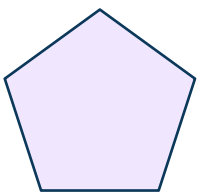
Standard: 4.G.3
DOK 2

6 Which figure has exactly 4 lines of symmetry?

A. 

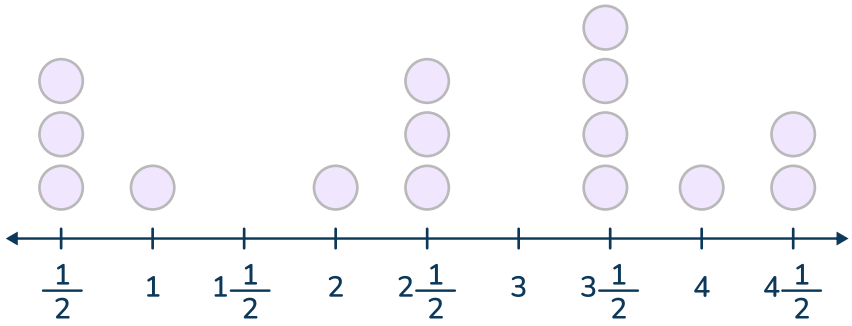
B. 

C. 

D. 

Standard: 4.MD.4
DOK 2

7 The line plot shows the length of 15 different fish.



What is the difference in length, in inches, between the fish that is the longest and the fish that is the shortest?

A. $3\frac{1}{2}$ inches

B. $\frac{1}{2}$ inches

C. 3 inches

D. 4 inches

Standard: 4.OA.5
DOK 2

8 What is the rule for the number pattern below?

192, 48, 12, 3, ...

A. Multiply by 4
B. Divide by 2
C. Divide by 4
D. Divide by 3

Standard: 4.NF.4b
DOK 2

9 Which number makes the equation true?

$$14 \times \frac{2}{5} = ? \times \frac{1}{5}$$

A. 14
B. 28
C. 4
D. 12

Standard: 4.NF.A.1
DOK 1

10 Which fraction is equivalent to the fraction model?

A. $\frac{1}{3}$

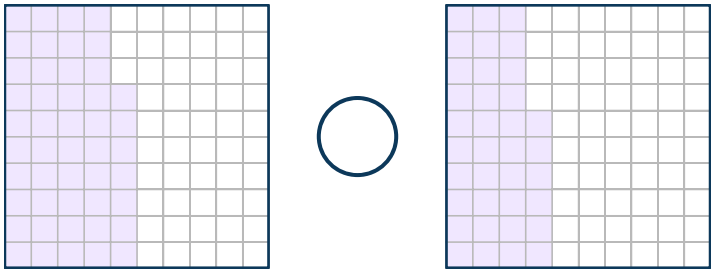
B. $\frac{3}{12}$

C. $\frac{1}{4}$

D. $\frac{4}{6}$

Standard: 4.NF.7
DOK 1

11 Which of the following statements correctly compares the two hundreds grids below?



A. 0.47 > 0.36
B. 0.47 < 0.36
C. 0.46 = 0.37
D. 0.37 > 0.46

Standard: 4.MD.2
DOK 1

12 Katie bought 5 pounds of grass seed for her backyard. She used 55 ounces of the seed on Monday and put the rest in her garage to use the following week. How many ounces of grass seed does Katie have to use next week?

A. 35 ounces
B. 50 ounces
C. 80 ounces
D. 25 ounces

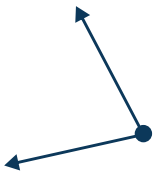
Standard: 4.NBT.6
DOK 1

13 What is the value of 8374 ÷ 3

A. 2971 r 1
B. 2791 r 1
C. 2791
D. 2971

Standard: 4.MD.6
DOK 1

14 Which angle appears to be 120°?

A. 

B. 

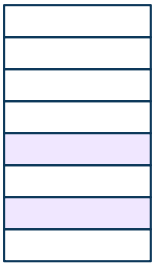
C. 

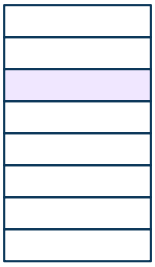
D. 

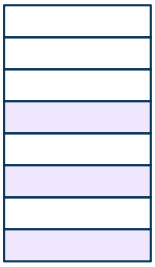
Standard: 4.NF.1

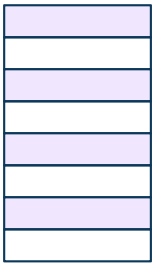
DOK 2

15 The shapes are divided into equal parts. Which shape is $\frac{1}{4}$ shaded?

A. 

B. 

C. 

D. 

Standard: 4.NF.A.2
DOK 1

16 Which fraction makes the comparison true?

$$\frac{3}{5} < \_\_\_\_$$

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

B. $\frac{5}{8}$

C. $\frac{6}{10}$

D. $\frac{4}{12}$

Standard: 4.NF.3.d
DOK 2

17 Roberto made salsa. He ate $\frac{1}{8}$ of the salsa on Monday, $\frac{3}{8}$ of the salsa on Tuesday, and $\frac{2}{8}$ of the salsa on Wednesday. What fraction of the salsa was left after Wednesday?

A. $\frac{1}{8}$

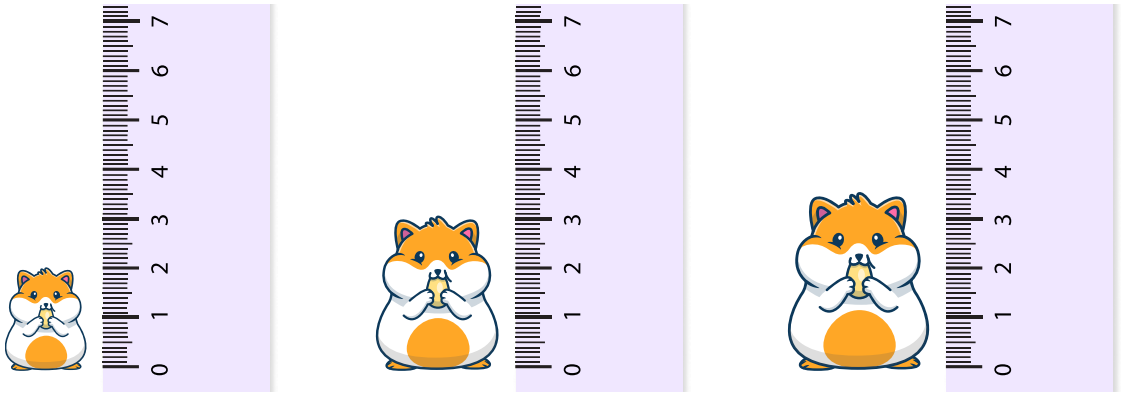
B. $\frac{2}{8}$

C. $\frac{5}{8}$

D. $\frac{6}{8}$

Standard: 4.MD.B.4
DOK 2

18 Alyssa got a hamster and measured his length once a month for three months.



Month 1 Month 2 Month 3

How much did the hamster grow over the three months?

A. 2 inch

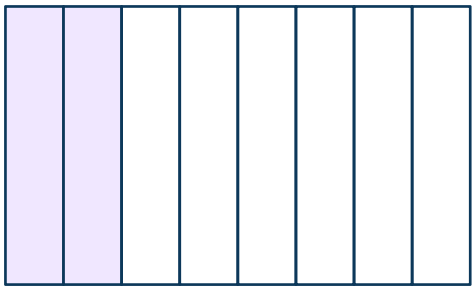
B. 3 inches

C. $1\frac{1}{2}$ inches

D. $3\frac{1}{2}$ inches

Standard: 4.NF.2
DOK 1

19 Angela had a rectangle with 8 equal parts. She shaded 2 of them. Which fractions does Angela's rectangle show are equal?



A. $\frac{1}{8} = \frac{1}{4}$

B. $\frac{2}{8} = \frac{1}{4}$

C. $\frac{1}{8} = \frac{1}{2}$

D. $\frac{2}{8} = \frac{1}{2}$

Standard: 4.NBT.6
DOK 1

20 What is the value of 34 x 12 ?

A. 340
B. 408
C. 480
D. 68

Standard: 4.OA.B.4
DOK 2

21 The number of rabbits that are on the farm is less than 35, and is also a multiple of 8. How many rabbits are on the farm?

A. 32
B. 30
C. 40
D. 14

Standard: 4.MD.A.3
DOK 1

22 Xavier's backyard is in the shape of a rectangle and has an area of 96 yd^2. If the width of the backyard is 8 yards, what is the length of the backyard?

A. 12 yards
B. 13 yards
C. 9 yards
D. 8 yards

Standard: 4.NBT.A.2
DOK 1

23 Which number makes the comparison true?

$$45{,}843 < \_\_\_\_\_$$

A. 45,842
B. 45,840
C. 45,844
D. 45,841

Standard: 4.G.3
DOK 1

24 Which statement describes all right triangles?

A. It has more than one 90°.
B. It has three angles that are less than 90°.
C. It has exactly one 90° angle.
D. It has three equal angles.

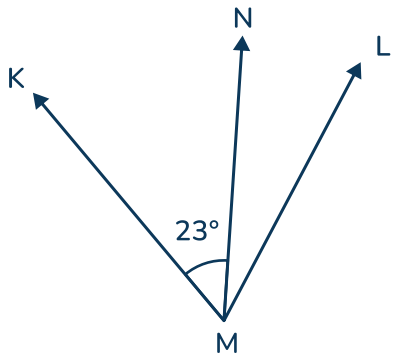
Standard: 4.MD.C3
DOK 2

25 What is the measurement of an angle in degrees that represents $\frac{1}{6}$ of a complete circle?

A. 30°
B. 90°
C. 60°
D. 180°

Standard: 4.MD.C.7
DOK 2

26 In the picture below, angle KML is 86°. What is the measure, in degrees, of angle LMN?



A. 63°
B. 109°
C. 20°
D. 67°

Standard: 4.NBT.A.3
DOK 1

27 Select the numbers that round to 17,000 when rounded to the nearest thousand.

A. 16,997 15,789 16,509
B. 17,090 16,508 17,430
C. 18,008 17,065 16,892
D. 17,094 17,609 16,870

Standard: 4.MD.A.3
DOK 1

28 A school wants to put a fence around their playground. The playground is in the shape of a rectangle and has a length of 110 feet and a width of 200 feet. How much fencing will the school need?

A. 310 ft
B. 620 ft
C. 310 ft^2
D. 620 ft^2

Standard: 4.OA.A.3
DOK 2

29 Lola went peach picking at the local farm. She picked 48 peaches. She decided to keep 12 of them to make a pie and then share the rest of them with 3 of her friends. Which equation can be used to find, n, the number of peaches each of her friends received?

A. (48 ÷ 3) - 12 = n
B. (48 - 12) x 3 = n
C. (48 + 12) ÷ 3 = n
D. (48 - 12) ÷ 3 = n

Standard: 4.OA.A.1
DOK 2

30 What number is 7 times as much as 7000?

A. 490
B. 4,900
C. 49,000
D. 49

Session 2:
5 Multiple Choice
8 Constructed Response

Standard: 4.NBT.A.1
DOK 2

31 How many times greater is the value of the digit 5 in the number 5,640 than the value of the 5 digit in the number 18,657?

A. 10,000 times greater
B. 1,000 times greater
C. 100 times greater
D. 10 times greater

Standard: 4.NBT.A.3
DOK 2

32 A number rounded to the nearest thousand is 54,000. Which of the following could be the number before it was rounded?

A. 54,789
B. 53,449
C. 54,900
D. 53,543

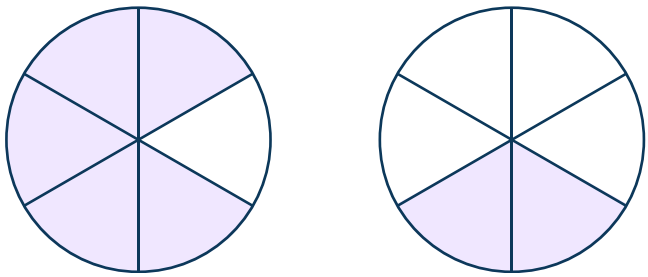
Standard: 4.OA.A.3
DOK 2

33 Lynwood Elementary is having a craft sale. They are selling ornaments for $3. There are 8 boxes of ornaments and 20 ornaments in each box. If all the ornaments are sold, how much money will Lynwood Elementary school make?

A. $60
B. $320
C. $24
D. $480

Standard: 4.NF.B.3c
DOK 2

34 Angela had a rectangle with 8 equal parts. She shaded 2 of them. Which fractions does Angela's rectangle show are equal?



A. $\frac{7}{12}$
B. $\frac{7}{6}$
C. $\frac{6}{12}$
D. $\frac{6}{6}$

Standard: 4.OA.A.3
DOK 2

35 Bella is at the boardwalk. She only has 47 tickets to play the boardwalk games and each game is 4 tickets. What is the most amount of games she can play?

A. 12 games
B. 11 games
C. 10 games
D. 9 games

Constructed response questions:

Standard: 4.NF.C.5
DOK 2
Constructed response - 1 point

36 Madeline ran 0.9 of a mile. What is the fractional equivalent of the distance she ran?

$$0.9 = \frac{?}{?}$$

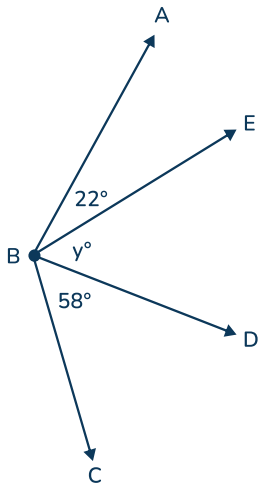
Standard: 4.NBT.B.5
DOK 1
Constructed response - 1 point

37 Find the value of 9,403 x 4.

$$9{,}403 \times 4 = ?$$

Standard: 4.MD.C.7
DOK 3
Constructed response - 2 points

38 In the figure below, angle ABC is equal to 115.



Part A: Write an equation that can be used to find the measure of y in degrees.

Part B: What is the value of y?

Standard: 4.MD.A.3
DOK 3
Constructed response - 2 points

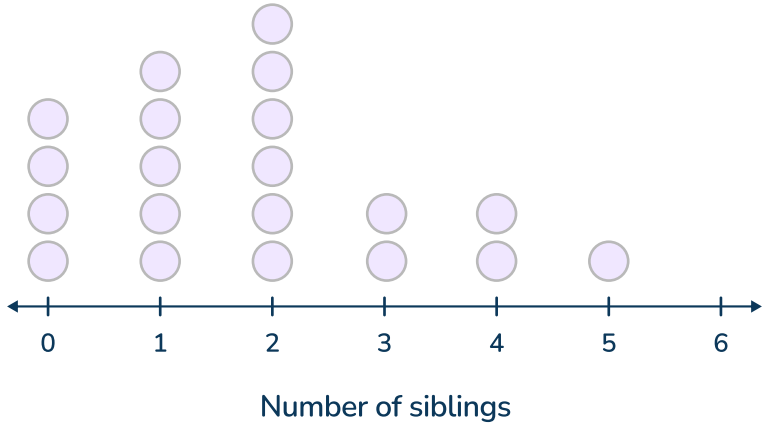
39 Terence and Theo were having a debate in math class. Terence says that two rectangles that have the same area can have different perimeters. Theo says that two rectangles with the same area have to have the same perimeter. Decide who is correct with an explanation.

Standard: 4.NF.3b
DOK 3
Constructed response - 2 point

40 Liam ordered a pizza for him and his friend. He ate $\frac{3}{8}$ of the pizza and his friends ate $\frac{3}{8}$ of the pizza. Is there any pizza leftover for Liam to take home? Explain your answer.

Standard: 4.MD.4
DOK 3
Constructed Response - 2 points

41 Michael is conducting a survey of his 4th grade class. He asks all the students the same question, "How many siblings do you have?" He displayed the data on the line plot below.

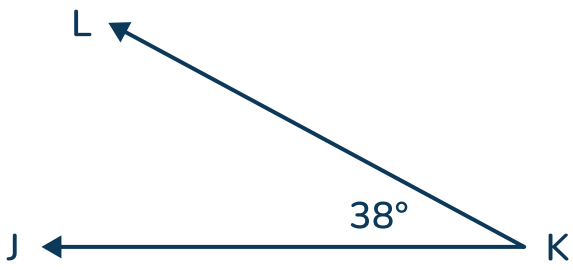


Part A: How many more students have 2 siblings than 5 siblings?

Part B: How many total students are in Michael's class? Explain how you got your answer using
the line plot.

Standard: 4.MD.C.7
DOK 3
Constructed response - 2 points

42 Use the diagram below of the angle to answer the question.



Angle JKL is 38 degrees. If Ray KM were added to this diagram forming the right angle JKM and a new angle LKM. What would the measure of angle LKM be in degrees?

Standard: 4.OA.3, 4.NBT.5, 4.NBT.6
DOK 4
Constructed Response - 4 points

43 A bakery is preparing a large order of mini-cupcakes for a wedding. The table shows how many batches of each flavor of cupcakes were ordered.

PART A:
Fill out the table to complete the work order to help the baker determine how many of each flavor mini-cupcake she needs for the order. The table shows how many cupcakes are made from one batch, and then how many batches of each flavor she needs to make. Find the grand total of all cupcake flavors.

Mini-Cupcake Flavor	Mini-Cupcake in One Batch	Batches Ordered	Total Number of Mini-Cupcakes
Chocolate	36	9	_____
Peanut Butter Fudge	28	7	_____
Lemon Blueberry	25	6	_____
Vanilla	42	8	_____
Grand Total of Mini-Cupcake Ordered =			_____

PART B:

The baker needs to transport all of the cupcakes to the wedding venue. She can fit 24 mini-cupcakes in one box. How many boxes will she need to transport all of the mini-cupcakes in boxes? Explain your answer.

Answer Key - Multiple Choice

Item number	Correct answer	Standard(s)	Depth of Knowledge
1	D	**4.NBT.2a**	1
2	A	**4.OA.1**	2
3	D	**4.NBT.5**	1
4	A	**4.NF.3c**	1
5	C	**4.G.2.a**	2
6	A	**4.G.3**	1
7	D	**4.MD.4**	2
8	C	**4.OA.5**	2
9	B	**4.NF.4.b**	2
10	A	**4.NF.A.1**	1
11	A	**4.NF.7**	1
12	D	**4.MD.2**	1
13	B	**4.NBT.6**	1
14	C	**4.MD.6**	1
15	A	**4.NF.1**	2
16	B	**4.NF.A.2**	1
17	B	**4.NF.3d**	2
18	C	**4.MD.B.4**	2
19	B	**4.NF.2**	1
20	B	**4.NBT.5**	1

Item number	Correct answer	Standard(s)	Depth of Knowledge
21	A	**4.OA.B.4**	2
22	A	**4.MD.A.3**	1
23	C	**4.NBT.A.2**	1
24	C	**4.G.3**	1
25	C	**4.MD.C.3**	2
26	A	**4.MD.C.7**	2
27	B	**4.NBT.A.3**	1
28	B	**4.MD.A.3**	1
29	D	**4.OA.A.3**	2
30	C	**4.OA.A.1**	2
31	C	**4.NBT.A.1**	2
32	D	**4.NBT.A.3**	2
33	D	**4.OA.A.3**	2
34	B	**4.NF.B.3c**	2
35	B	**4.OA.A.3**	2
36	$\frac{9}{10}$	**4.NF.C.5**	2
37	37612	**4.NBT.B.5**	1
38	Answer on rubric	**4.MD.C.7**	3
39	Answer on rubric	**4.MD.A.3**	3
40	Answer on rubric	**4.NF.3b**	3

Item number	Correct answer	Standard(s)	DOK
41	Part A: 5 students Part B: 20 students	**4.MD.4**	3
42	Answer on rubric	**4.MD.A.3**	3
43	Answer on rubric	**4.OA.3,** **4.NBT.5,** **4.NBT.6**	3

Breakdown of Assessment				
Operations and Algebraic thinking (OA)	Number and Operations in Base Ten (NBT)	Number and Operations - Fractions (NF)	Measurement and Data (MD)	Geometry (G)
NY: (15-25%) This Assessment: 18%	NY: (20-30%) This Assessment: 24%	NY: (20-30%) This Assessment: 24%	NY: (22-32%) This Assessment: 27%	NY:(2-7%) This Assessment: 7%

Rationales

Item	KEY	Rationale
1	A is incorrect	A student may have chosen this answer if they did not recognize the digit 4 to be in the hundreds place and the digit 2 to be in the ones place.
	B is incorrect	A student may have chosen this answer if they did not recognize the digit 1 to be in the ten-thousand place.
	C is incorrect	A student may have chosen this answer if they did not recognize the digit 1 to be in the ten-thousand place, the digit 4 to be in the hundreds place and the digit 2 to be in the ones place.
	D is correct	This is the correct answer because 8 is in the hundred thousand place, 1 is in the ten thousand place, 4 is in the hundred place and 2 is in the ones place.

Item	KEY	Rationale
2	A is correct	This is the correct answer because Roz walks 3 times as many miles as Jules - implying 3 x 7.
	B is incorrect	A student may choose this answer if they misinterpret the phrase “more than” to mean multiply.
	C is incorrect	A student may choose this answer if they misinterpret the phrase “3 more than 7 times” to mean 3 x 7.
	D is incorrect	A student may choose this answer if they misinterpret the phrase “3 miles less than” to mean multiply.

Item	KEY	Rationale
3	A is incorrect	A student may choose this answer if they misread the tens digit.
	B is incorrect	A student may choose this answer if they misread the digits in the number.
	C is incorrect	A student may choose this answer if they misread the tens digit.
	D is correct	This is the correct answer.

Item	KEY	Rationale
4	A is correct	This is the correct answer. $4\frac{2}{5} = \frac{22}{5}$
	B is incorrect	A student may choose this answer if they miscalculate the numerator of the improper fraction.
	C is incorrect	A student may choose this answer if they miscalculate the numerator of the improper fraction.
	D is incorrect	A student may choose this answer if they add the numerator to the whole number to the numerator.

Item	KEY	Rationale
5	A is incorrect	A student may choose this answer if they do not correctly recall the definition of an obtuse triangle. This is the definition of an acute triangle.
	B is incorrect	A student may choose this answer if they do not correctly recall the definition of an obtuse triangle.
	C is correct	This is the correct answer. An obtuse triangle has exactly 1 obtuse angle.
	D is incorrect	A student may choose this answer if they do not correctly recall the definition of an obtuse triangle. This is the definition of a right triangle.

Item	KEY	Rationale
6	A is correct	This is the correct answer. A square has 4 lines of symmetry.
	B is incorrect	A student may choose this answer if they confuse a rectangle with a square. A square has 2 lines of symmetry.
	C is incorrect	A student may choose this answer if they are unsure of what a line of symmetry is.
	D is incorrect	A student may choose this answer because a regular pentagon has 5 lines of symmetry.

Item	KEY	Rationale
7	A is incorrect	A student may choose this answer if they subtract incorrectly.
	B is incorrect	A student may choose this answer if they subtract incorrectly.
	C is incorrect	A student may choose this answer if they subtract incorrectly.
	D is correct	This is the correct answer because $4\frac{1}{2} - \frac{1}{2} = 4$

Item	KEY	Rationale
8	A is incorrect	A student may choose this answer if they read the pattern from right to left.
	B is incorrect	A student may choose this answer if they think it's divided by 2 instead of 4.
	C is correct	This is the correct answer. You divide by 4 from one number to the next.
	D is incorrect	A student may choose this answer if they think it's divided by 3 instead of 4.

Item	KEY	Rationale
9	A is incorrect	A student may choose this answer if they look at it quickly and see the 14 on the left side of the equation, and assume that there should be a 14 on the right side of the equation.
	B is correct	This is the correct answer. $14 \times \frac{2}{5} = \frac{28}{5}$ $\frac{28}{5} = 28 \times \frac{1}{5}$
	C is incorrect	A student may choose this answer if they do not have a strong understanding of multiplying a whole number and a fraction.
	D is incorrect	A student may choose this answer if they do not have a strong understanding of multiplying a whole number and a fraction.

Item	KEY	Rationale
10	A is correct	This is the correct answer because the fraction model represents $\frac{4}{12}$ and $\frac{1}{3}$ is equivalent to it.
	B is incorrect	A student may choose this answer if they do not have a strong understanding of equivalent fractions.
	C is incorrect	A student may choose this answer if they do not have a strong understanding of math multiplication facts.
	D is incorrect	A student may choose this answer if they do not have a strong understanding of equivalent fractions.

Item	KEY	Rationale
11	A is correct	To determine which of the statements is true, the student likely labeled each of the hundred grids correctly and identified that 0.47 is larger than 0.36.
	B is incorrect	The student does not have an understanding of the meaning of the comparison symbols, and incorrectly compared the two decimals.
	C is incorrect	The student does not have an understanding of the meaning of the comparison symbols, and incorrectly compared the two decimals.
	D is incorrect	The student likely did not connect the visual models with the decimal in numeral form. The student needs to focus on understanding how to interpret models used to represent tenths and hundredths.

Item	KEY	Rationale
12	A is incorrect	The student correctly converted the 5 pounds into 80 ounces. They then subtracted incorrectly, not regrouping when subtracting in the ones place.
	B is incorrect	The student subtracted 55 ounces - 5 pounds, not converting the numbers into similar units.
	C is incorrect	The student correctly converted the 5 pounds into 80 ounces, but did not complete the second step to solve the amount of ounces remaining.
	D is correct	The student correctly converted the 5 pounds into 80 ounces. They then subtracted 80 ounces - 55 ounces to find the answer, 25 ounces.

Item	KEY	Rationale
13	A is incorrect	A student might choose this answer if they look at the answers quickly and invert the digits.
	B is correct	This is the correct answer. 8374 ÷ 3 using the algorithm for long division gives you the quotient 2791 r 1.
	C is incorrect	A student may choose this answer if they do not include the remainder in the answer.
	D is incorrect	A student may choose this answer if they invert the digits and do not include the remainder in the answer.

Item	KEY	Rationale
14	A is incorrect	A student may choose this answer if they do not have a strong understanding of how to measure angles and does not know the difference between an acute angle and an obtuse angle.
	B is incorrect	A student may choose this answer if they do not have a strong understanding of how to measure angles and does not know the difference between an acute angle and an obtuse angle.
	C is correct	This is the correct answer. The angle is obtuse and appears to be 120 degrees.
	D is incorrect	A student may choose this answer if they recognize the angle as being larger than 90 degrees. However, it is a straight angle not obtuse.

Item	KEY	Rationale
15	A is correct	To determine the answer to this question, students need to realize that the whole is broken up into 8 pieces, and then need to figure out how many are in each group if they split it into 4 equal groups. Two eighths are equal to one fourth.
	B is incorrect	Students may choose this answer if they mistakenly assume that only one piece needs to be shaded out of the total number of pieces, without realizing that there are 8 pieces instead of 4.
	C is incorrect	Students may choose this answer if they mistakenly equate 3 eighths to one fourth.
	D is incorrect	Students may choose this answer if they think four pieces need to be shaded, going by the denominator instead of the numerator.

Item	KEY	Rationale
16	A is incorrect	A student may choose this answer if they do not have a strong understanding of fraction values or they make a mistake comparing them. $\frac{3}{5} > \frac{1}{2}$
	B is correct	This is the correct answer. $\frac{3}{5} < \frac{5}{8}$
	C is incorrect	A student may choose this answer if they do not have a strong understanding of fraction values or they make a mistake comparing them. $\frac{3}{5} = \frac{6}{10}$
	D is incorrect	A student may choose this answer if they do not have a strong understanding of fraction values or they make a mistake comparing them. $\frac{3}{5} > \frac{4}{12}$

Item	KEY	Rationale
17	A is incorrect	Students may choose this answer if they add all the parts and accidentally get 7 eighths, leaving $\frac{1}{8}$ remaining rather than 2 eighths
	B is correct	To determine this answer, students must add all the fractions in the problem ($\frac{1}{8}+\frac{3}{8}+\frac{2}{8}=\frac{6}{8}$) and subtract this from one whole, leaving them with 2 eighths.
	C is incorrect	Students may choose this answer if they add $\frac{3}{8}+\frac{2}{8}$ and stop.
	D is incorrect	Students may choose this answer if they add all the fractions in the problem, not realizing that the question is asking for how much is left rather than the total amount eaten.

Item	KEY	Rationale
18	A is incorrect	A student may choose this answer if they only look at the length of the hamster in month 1.
	B is incorrect	A student may choose this answer if they only look at the length of the hamster in month 2.
	C is correct	This is the correct answer because the difference between the length of the hamster in month 1 and month 3 is 2 $\frac{1}{2}$ inches
	D is incorrect	A student may choose this answer if they only look at the length of the hamster in month 3.

Item	KEY	Rationale
19	A is incorrect	Students may choose this answer if they assume equivalence based on the same denominators.
	B is correct	To determine this answer, students need to recognize that 2 eighths are shaded in the rectangle, and that is the same as 1 fourth because there are 4 groups of 2 eights in the whole, and one of those groups is shaded.
	C is incorrect	Students may choose this answer if they assume equivalence based on the same denominators.
	D is incorrect	Students may choose this answer if they assume equivalence based on the fact that there is a 2 in each fraction.

Item	KEY	Rationale
20	A is incorrect	A student may choose this answer if they multiply 34 by 10 only.
	B is correct	This is the correct answer. Any strategy used will yield the answer 408. $34 \times 12 = 408$
	C is incorrect	A student may choose this answer if they accidentally mix up the tens and the ones digit.
	D is incorrect	A student may choose this answer if they only multiply 2 times 34.

Item	KEY	Rationale
21	A is correct	This is the correct answer. 32 is less than 35 and a multiple of 8.
	B is incorrect	A student may choose this answer if they do not have strong math multiplication facts.
	C is incorrect	A student may choose this answer because it is a multiple of 8 but it is greater than 35.
	D is incorrect	A student may choose this answer if they do not have strong math multiplication facts.

Item	KEY	Rationale
22	A is correct	This is the correct answer. 8 x 12 = 96
	B is incorrect	A student may choose this answer if they do not have strong multiplication math facts.
	C is incorrect	A student may choose this answer if they do not have strong multiplication math facts.
	D is incorrect	A student may choose this answer if they do not have strong multiplication math facts.

Item	KEY	Rationale
23	A is incorrect	A student may choose this answer if they confuse the inequality symbol. 45,843 is not less than 45,842
	B is incorrect	A student may choose this answer if they confuse the inequality symbol. 45,843 is not less than 45,840
	C is correct	This is the correct answer. 45,843 < 45,844
	D is incorrect	A student may choose this answer if they confuse the inequality symbol. 45,843 is not less than 45,841

Item	KEY	Rationale
24	A is incorrect	A student may choose this answer because they see the 90 and do not fully read the statement or do not have a strong understanding of the properties of right triangles.
	B is incorrect	A student may choose this answer if they do not have a strong understanding of the properties of right triangles.
	C is correct	This is the correct answer because right triangles have exactly one 90° angle.
	D is incorrect	A student may choose this answer if they do not have a strong understanding of the properties of right triangles.

Item	KEY	Rationale
25	A is incorrect	The student may choose this answer if they think $360 \times \frac{1}{6}$ is equal to 30.
	B is incorrect	The student may choose this answer if they think $360 \times \frac{1}{6}$ is equal to 90.
	C is correct	This is the correct answer because $360 \times \frac{1}{6} = 60$
	D is incorrect	A student may choose this answer if they think they have to take half of 360.

Item	KEY	Rationale
26	A is correct	This is the correct answer. 86 - 23 = 63
	B is incorrect	The student may choose this answer if they add the values together instead of subtract.
	C is incorrect	The student may choose if they do not have a strong understanding of adjacent angles.
	D is incorrect	A student may choose this answer if they think angle KML is 90°.

Item	KEY	Rationale
27	A is incorrect	A student may choose this answer because two of the numbers round to 17,000.
	B is correct	This is the correct answer because when rounded, 17,090 is 17,000 16,508 is 17,000 17,430 is 17,000
	C is incorrect	A student may choose this answer because two of the numbers round to 17,000
	D is incorrect	A student may choose this answer because two of the numbers round to 17,000.

Item	KEY	Rationale
28	A is incorrect	A student may choose this answer if they only add 200 and 110.
	B is correct	This is the correct answer. To find perimeter add up all the sides or use the formula, P = 2l + 2w P = 2(110) + 2(200) P = 620 ft
	C is incorrect	A student may choose this answer if they only add 200 and 110 and think that that the units of perimeter are squared units.
	D is incorrect	A student may choose this answer because the number is correct but the units are not.

Item	KEY	Rationale
29	A is incorrect	A student may choose this answer if they misinterpret what is meant by the 12 and 3 in relation to the 48.
	B is incorrect	A student may choose this answer if they misinterpret what is meant by the 12 and 3 in relation to the 48.
	C is incorrect	A student may choose this answer if they misinterpret what is meant by the 12 and 3 in relation to the 48.
	D is icorrect	This is the correct answer because Lola divides the peaches that are left after she takes her 12. (48 - 12) ÷ 3 = n

Item	KEY	Rationale
30	A is incorrect	A student may choose this answer if they recognize that 7 x 7 = 49 but do not have a strong understanding of multiplying by multiples of ten.
	B is incorrect	A student may choose this answer if they recognize that 7 x 7 = 49 but do not have a strong understanding of multiplying by multiples of ten.
	C is correct	This is the correct answer. 7 x 7000 = 49,000
	D is incorrect	A student may choose this answer if they recognize that 7 x 7 = 49 but do not have a strong understanding of multiplying by multiples of ten.

Item	KEY	Rationale
31	A is incorrect	A student may choose this answer if they do not have a strong understanding of place value. Also, they may see the number 18,657 and assume it's 10,000 greater.
	B is incorrect	A student may choose this answer if they do not have a strong understanding of place value. Also, they may think that since the 5 is in the 1000 place in 5640.
	C is correct	This is the correct answer because the 5 in 5640 is really 5000 and the 5 in 18,657 is really 50. 50 x 100 = 5000
	D is incorrect	A student may choose this answer if they do not have a strong understanding of place value. Also, they may think that since the 5 is in the tens place in 18,657 it is ten times greater.

Item	KEY	Rationale
32	A is incorrect	The student may choose this answer if they do not have a strong understanding of rounding rules. 54,789 rounded to the nearest thousand is 55,000.
	B is incorrect	The student may choose this answer if they do not have a strong understanding of rounding rules. 53,449 rounded to the nearest thousand is 53,000.
	C is incorrect	The student may choose this answer if they do not have a strong understanding of rounding rules. 54,900 rounded to the nearest thousand is 55,000.
	D is correct	This is the correct answer because 53,543 rounded to the nearest thousand is 54,000.

Item	KEY	Rationale
33	A is incorrect	A student may choose this answer if they only multiply $3 by 20 meaning they only find the amount of money from one box.
	B is incorrect	A student may choose this answer if they multiply by $2 instead of $3.
	C is incorrect	A student may choose this answer if they only multiply 8 by $3.
	D is correct	This is the correct answer because there are a total of 8 x 20 = 160 ornaments and each are $3. 3 x 160 = 480.

Item	KEY	Rationale
34	A is incorrect	A student may choose this answer if they do not have a strong understanding of adding fractions. The models represent $\frac{5}{6}$ and $\frac{2}{6}$, this choice represents adding the numerators and denominators which is incorrect.
	B is correct	This is the correct answer. $\frac{5}{6} + \frac{2}{6} = \frac{7}{6}$
	C is incorrect	A student may choose this answer if they do not have a strong understanding of adding fractions.
	D is incorrect	A student may choose this answer if they do not have a strong understanding of adding fractions.

Item	KEY	Rationale
35	A is incorrect	A student may choose this answer because $47 \div 4$ is close to 12.
	B is correct	This is the correct answer because $47 \div 4 = 11$ r 3
	C is incorrect	A student may select this answer because Bella can play 10 games. However, it is not the most amount of games she can play.
	D is incorrect	A student may select this answer because Bella can play 9 games. However, it is not the most amount of games she can play.

Item	KEY	Rationale
36	1 point	The student correctly identifies the fraction $\frac{9}{10}$
	0 points	The student does not show an understanding of converting a decimal to a fraction.

Item	KEY	Rationale
37	1 point	The student correctly multiplies. $9403 \times 4 = 37{,}612$
	0 points	The student does not multiply the numbers correctly.

Item	KEY	Rationale
38	2 point	To receive 2 points both parts have to be answered correctly. Part A: $22 + 58 + y = 115$ or an equivalent equation. Part B: The value of y is 35°
	1 point	The student answers one of the parts correctly. OR Has the incorrect equation but the correct value for y based on their equation.
	0 points	The student does not show an understanding of adjacent angles.

Item	KEY	Rationale
39	2 point	To receive 2 points, students need to identify that Terence is correct with an explanation that can include words, pictures, and calculations.
	1 point	Students will receive 1 point if they identify Terence as being correct but do not provide a thorough explanation.
	0 points	Students will receive 0 points if they leave the response blank, or if they do not write a correct expression or solve correctly.

Item	KEY	Rationale
40	2 point	To receive 2 points the student needs to explain that $\frac{3}{8} + \frac{3}{8} = \frac{6}{8}$ and that $\frac{6}{8}$ is less than a whole. $\frac{8}{8} - \frac{6}{8} = \frac{2}{8}$. There is $\frac{2}{8}$ of the pizza leftover.
	1 point	A student gets 1 point if they know there is $\frac{2}{8}$ of the pizza leftover or partially can answer the question.
	0 points	The student does not demonstrate understanding.

Item	KEY	Rationale
41	2 points	To receive 2 points. Part A: 6 - 1 = 5, 5 students Part B: Counted all the markers or added up all the markers which is 20. So there are 20 students in the class.
	1 point	To receive 1 point. Only Part A is correct OR Only Part B is correct
	0 points	Students will receive 0 points if they leave the response blank, or if they do not write a correct expression or solve correctly.

Item	KEY	Rationale
42	2 points	To receive 2 points, students need to correctly find the measure of angle LKM to be 52 degrees
	1 point	Students will receive 1 point if they make a minor in calculation but still get a value that is an acute angle.
	0 points	Students will receive 0 points if they leave the response blank, or if they do not write a correct expression or solve correctly.

Item	KEY	Rationale
43	4 points	In order to receive 4 points, students need to correctly answer all parts of Part A and Part B. Part B should include a thorough explanation of their answer. Part A: To complete the table, students need to first, multiply the “mini-cupcakes in one batch” number by the “batches ordered” number for each flavor. Then, they will need to add up the total of all the flavors to get a grand total. Chocolate = 324 Peanut Butter Fudge = 196 Lemon Blueberry = 150 Vanilla = 336 Total = 1,006 Part B: Students need to divide the total number of mini-cupcakes (1,006) by the number of cupcakes that can fit in 1 box (24). Students should get an answer of 41 remainder 22. This means the baker will need 42 boxes. Students must include an explanation for why the baker will need 42 boxes. Students will need to interpret the remainder and should explain that the baker will need an extra box to carry the 22 leftover mini-cupcakes.
	3 points	In order to receive 3 points, students may answer all parts of Part A and Part B, but they may not have a thorough explanation of why the baker needs 42 boxes.
	2 points	In order to receive 2 points, students may • make a mistake on Part A, which then causes them to make a math mistake on Part B, as well. • only answer one part correctly. OR • fail to realize that the baker will need an extra box, but the math calculations for the rest of the problem are correct.

Item	KEY	Rationale
	1 point	To receive 1 point, students may get one or two calculations correct, but overall most of the math and understanding of the word problem are incorrect or missing.
	0 points	To receive 0 points, the student must leave the answer blank or get no parts of the problem correct.

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