THIRD SPACE LEARNING

5th Grade Massachusetts State Test

Massachusetts Practice Test
Grade 5

Grade 5

Questions

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

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

The table below lists the prices of some of the top-selling fruits at the grocery store.

Item	Size	Price
Bananas	1 bunch	$0.72
Blueberries	10 oz container	$3.99
Strawberries	16 oz container	$4.89
Avocado	1 avocado	$1.29
Watermelon	1 watermelon	$9.87
Oranges	4 lb bag	$5.75

1 How much would it cost to buy 2 bunches of bananas, 1 container of strawberries, and 2 bags of oranges?

A. $12.08
B. $17.11
C. $17.83
D. $11.36

2 What fraction of a meter is 75 centimeters?

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

B. $\frac{5}{7}$

C. $\frac{7}{10}$

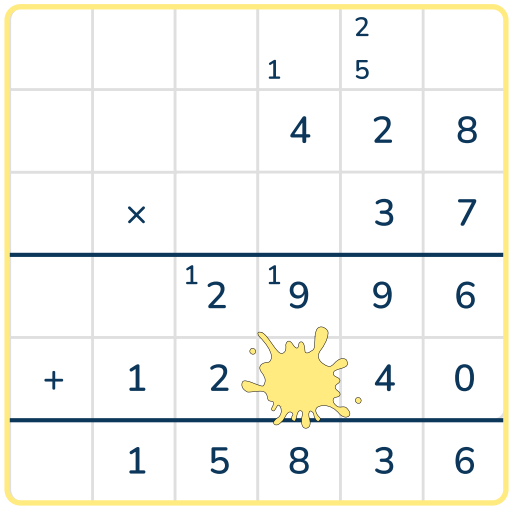
D. $\frac{3}{4}$

---

3 A certain fraction is greater than 0 and less than 1. When that fraction is multiplied by 2, which point(s) on the number line could be the answer? Select all correct answers.

A. Point A
B. Point B
C. Point C
D. Point D

4 Grace found the product of 428 and 37. Her work is shown below. Her teacher was unable to read one of the numbers in her work.



			1	2 5	
			4	2	8
	×			3	7
		1 2	1 9	9	6
+	1	2	[illegible]	4	0
	1	5	8	3	6

What number belongs in the box where the number the teacher can't read is?

A. 6
B. 7
C. 8
D. 9

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5 Which expression shows '7 more than the quotient of 5 and 8'?

A. $7 - 5 \div 8$
B. $5 \times 8 + 7$
C. $\frac{5}{8} + 7$
D. $7 + (5 + 8)$

6 Noah built a new garden bed in his backyard. He needs to fill it with $8\frac{1}{3}$ cubic yards of soil. He has already poured in $5\frac{7}{12}$ cubic yards of soil. How much more soil does he need to pour in to fill the garden bed? Answer in lowest terms.

A. $2\frac{3}{4}$ cubic yards

B. $2\frac{1}{4}$ cubic yards

C. $3\frac{10}{12}$ cubic yards

D. $3\frac{1}{4}$ cubic yards

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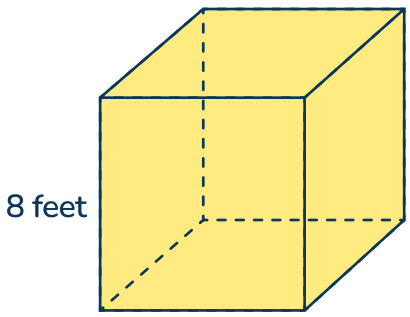
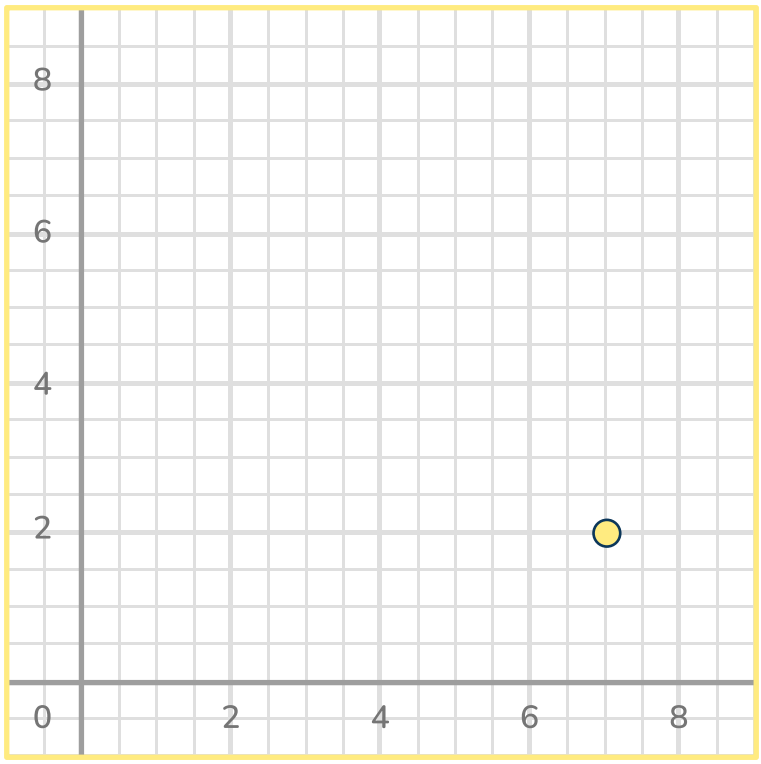
7 Which expression represents the volume, in cubic feet, of this cube?



A. 8 x 6
B. 8 x 8 x 8
C. 6 x (8 + 8 + 8 + 8)
D. 8 + 8 + 8 + 8 + 8 + 8

8



What are the coordinates of the point shown?

A. (7, 2)
B. (6, 2)
C. (2, 7)
D. (6, 8)

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9 Lila has been tracking the growth of a seedling for a gardening project. The seedling has grown $\frac{1}{4}$ of an inch each day and has grown a total of 3 inches taller. How many days has Lila been tracking the seedling?

A. 4 days

B. $\frac{3}{4}$ of a day

C. 6 days

D. 12 days

10 Mateo and his 2 friends go out to eat at a restaurant. At the end of the meal, the total bill is $54.60. They decide to split the bill equally. How much will each person pay?

A. $109.20
B. $18.20
C. $18.33
D. $27.30

---

11 Use the correct order of operations to solve the expression below:

$$5 + 12 \times 3 - 25 + 6$$

A. 22
B. 26
C. 32
D. 42

12 The table below shows the time it took four runners to complete a mile.

Runner	Time (minutes)
1	6.54
2	7.051
3	7.15
4	6.5

Which shows the correct order of the runners' times from lowest time to highest time?

A. Runner 4, Runner 1, Runner 2, Runner 3
B. Runner 3, Runner 2, Runner 4, Runner 1
C. Runner 1, Runner 4, Runner 3, Runner 2
D. Runner 1, Runner 4, Runner 2, Runner 3

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13 Sofia wrote down two patterns:

Pattern X: 0, 18, 36, 54, 72, 90...
Pattern Y: 0, 6, 12, 18, 24, 30...

Which statement correctly compares Sophia's patterns?

A. The numbers in both patterns start even, then become odd.
B. The numbers in both patterns alternate between odd and even.
C. The numbers in Pattern Y are 3 times the numbers in Pattern X.
D. The numbers in Pattern Y are $\frac{1}{3}$ of the numbers in Pattern X.

14 Three chocolate bars are shared equally between 4 people. What fraction of the chocolate bar will each person get?

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

B. $\frac{4}{3}$

C. $\frac{3}{4}$

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

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15 What number is two hundred seven and ninety-five thousandths?

A. 207.95
B. 207.095
C. 0.20795
D. 207,095

16

Which name(s) can this shape be classified as? Select all the correct answers.

A. Rhombus
B. Quadrilateral
C. Rectangle
D. Square
E. Parallelogram

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17 What is the correct way to write 504.102 in expanded form?

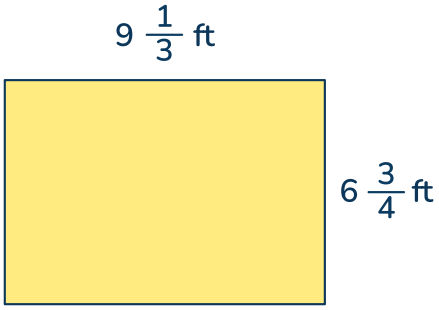
A. $5 \times 100 + 4 \times 1 + 1\ (\frac{1}{100}) + 2\ (\frac{1}{1{,}000})$

B. $5 \times 100 + 4 \times 10 + 1 \times 1 + 2 \times (\frac{1}{100})$

C. $5 \times 100 + 4 \times 1 + 1 \times (\frac{1}{10}) + 2\ (\frac{1}{1{,}000})$

D. $5 \times (\frac{1}{100}) + 4 \times (\frac{1}{1}) + 1 \times (\frac{1}{10}) + 2\ (\frac{1}{100})$

18 Muhammad is getting new carpet installed in his bedroom. The diagram below shows the dimensions of his bedroom floor. If the carpet covers the entire floor, what is the area of the carpet?



A. $54\frac{1}{4}$ square feet

B. $16\frac{1}{2}$ square feet

C. $60\frac{3}{4}$ square feet

D. 63 square feet

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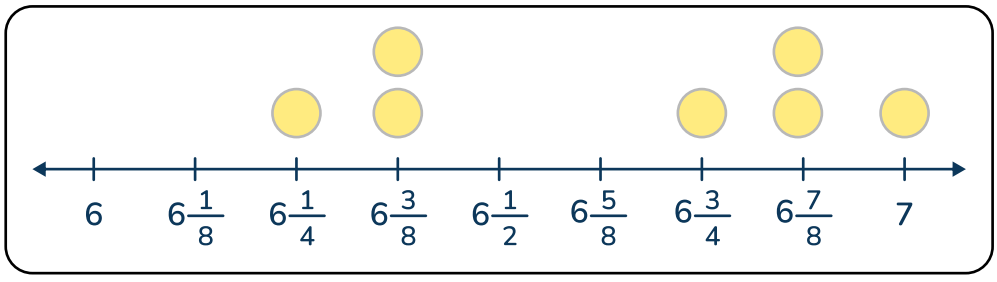
19 The line plot below shows the lengths of Parvati's pencils in inches. What is the total length, in inches, of the 3 longest pencils?



A. $20\frac{3}{4}$ inches

B. 19 inches

C. $13\frac{7}{8}$ inches

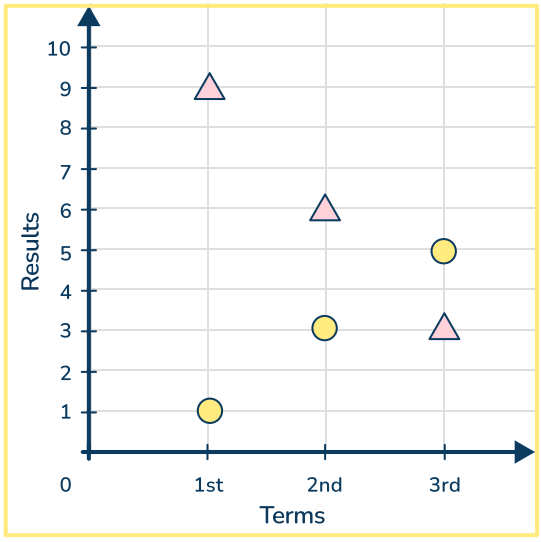
D. $20\frac{5}{8}$ inches

20 The rules for two patterns are below.

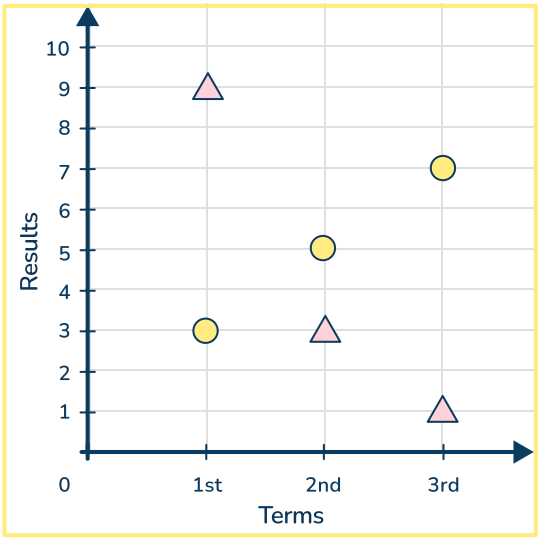
- Pattern A: Start at 3. Add 2.
- Pattern B: Start at 9. Multiply by $\frac{1}{3}$.

In the graphs, the circles represent Pattern A and the triangles represent Pattern B. Which graph is correct?

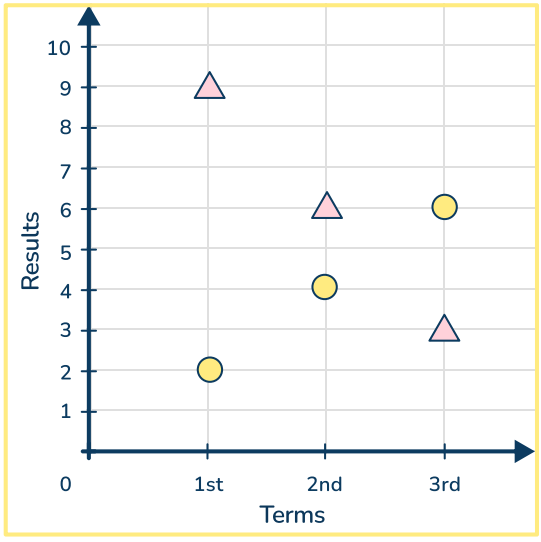
A.



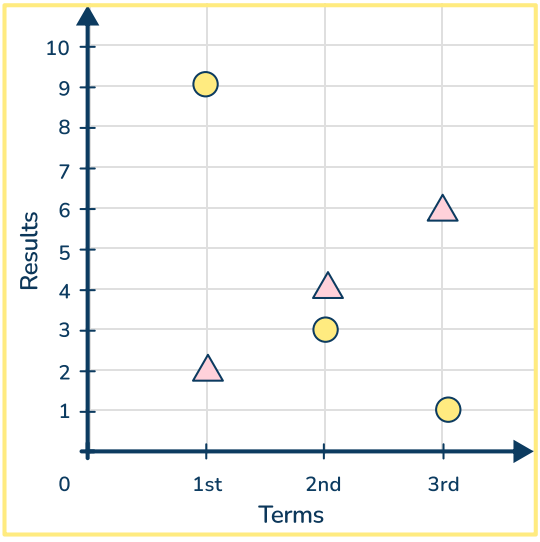
B.



C.



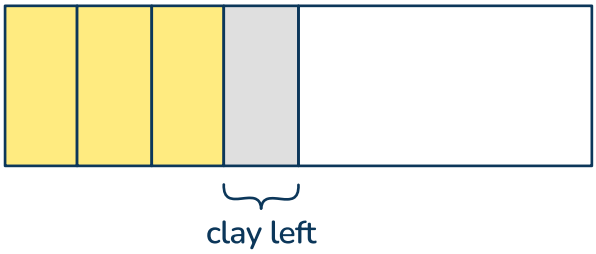
D.



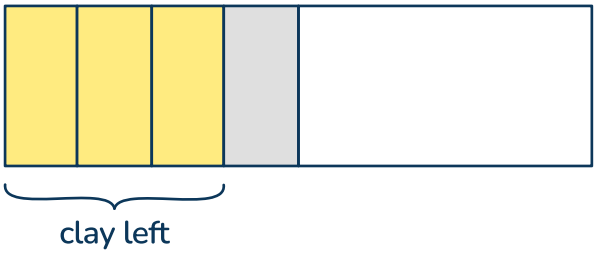
21 Will had $\frac{1}{2}$ of a pound of clay. He used $\frac{3}{4}$ of the clay for a project. To find how much of a pound of sand he has left, Will draws a model that represents 1 pound of clay.

Choose the model that shows the correct model.

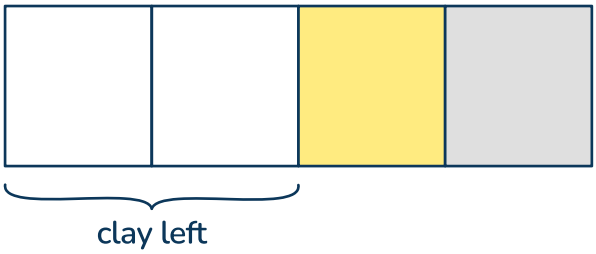
A.



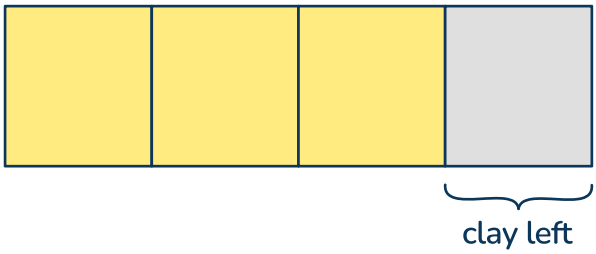
B



C.



D.



22 Round 4,723.958 to the nearest hundredth.

A. 4,700
B. 4,700.96
C. 4,723.96
D. 4,724

---

23 The graph shows the total number of ounces in any number of boxes of cereal.

Which statement correctly explains the meaning of (4, 50) on the graph?

A. Each box of cereal weighs 20 ounces.
B. 50 boxes of cereal weigh 4 ounces.
C. There are 60 ounces in 4 boxes of cereal.
D. 4 boxes of cereal weigh 50 ounces.

24 Solve the following equation.

$$2(5 \times 8 + 9) - 6 \div 2 + 7$$

A. 53
B. 102
C. 19
D. 105

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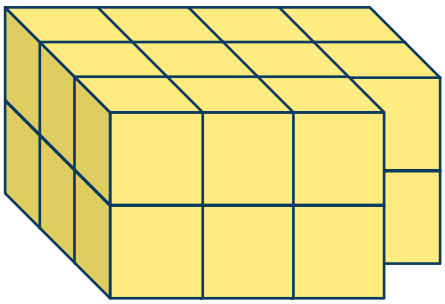
25 The composite shape below is made up of unit cubes. What is the volume, in cubic units, of the composite shape?



A. 17
B. 18
C. 20
D. 22

26 Maya's farm has 945 tomatoes ready to sell. The tomatoes will be put in baskets of 28 and sold for $5 per basket. How many full baskets of tomatoes can Maya make?

A. 34 baskets
B. 165 baskets
C. 33 baskets
D. 189 baskets

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27 Amelia volunteers at a pet store. She helps feed the animals based on the following rules:

- A hamster eats $\frac{3}{4}$ the amount of food as a rat.
- A guinea pig eats $\frac{4}{3}$ the amount of food as a rat.

Based on the information above, which statement is true?

A. A hamster and a guinea pig eat the same amount of food.
B. A guinea pig eats more than a hamster.
C. A hamster eats more than a guinea pig.
D. A guinea pig eats less than a rat.

28 Which shapes always have at least two pairs of parallel sides? Select all the correct answers.

A. Trapezoid
B. Pentagon
C. Parallelogram
D. Rhombus
E. Quadrilateral

---

29 Minka spent $3\frac{1}{4}$ hours practicing the violin. How many minutes did Minka spend practicing the violin?

A. 195 minutes
B. 165 minutes
C. 140 minutes
D. 135 minutes

30 Which equation equals 0.7?

A. $70 \div 10^2 = ?$
B. $700 \times 10^3 = ?$
C. $70 \div 10^3 = ?$
D. $0.007 \times 10^3 = ?$

31 A pancake recipe requires $2\frac{1}{3}$ cups of flour. How many cups of flour would be needed to make $4\frac{1}{2}$ pancake recipes?

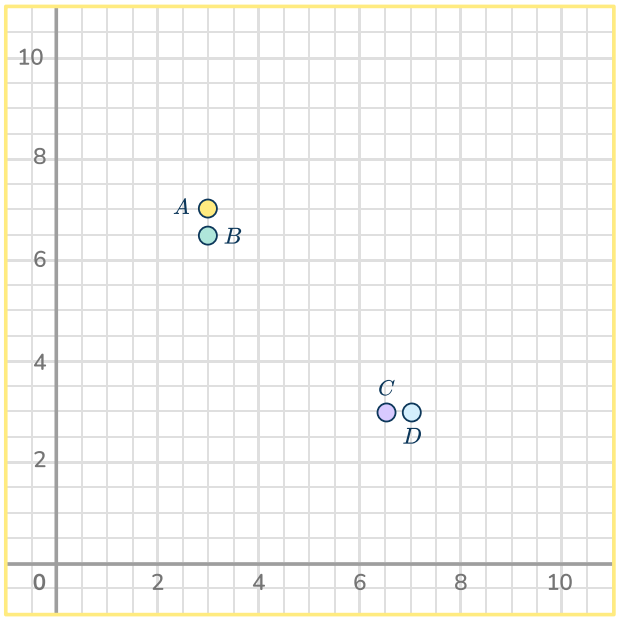
A. $8\frac{1}{6}$ cups

B. $6\frac{5}{6}$ cups

C. $9\frac{1}{2}$ cups

D. $10\frac{1}{2}$ cups

32 Which point shows (7, 3)?



A. Coordinate A
B. Coordinate B
C. Coordinate C
D. Coordinate D

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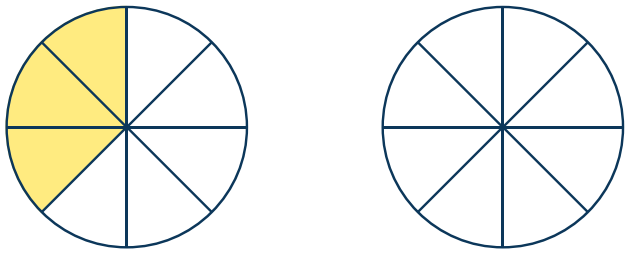
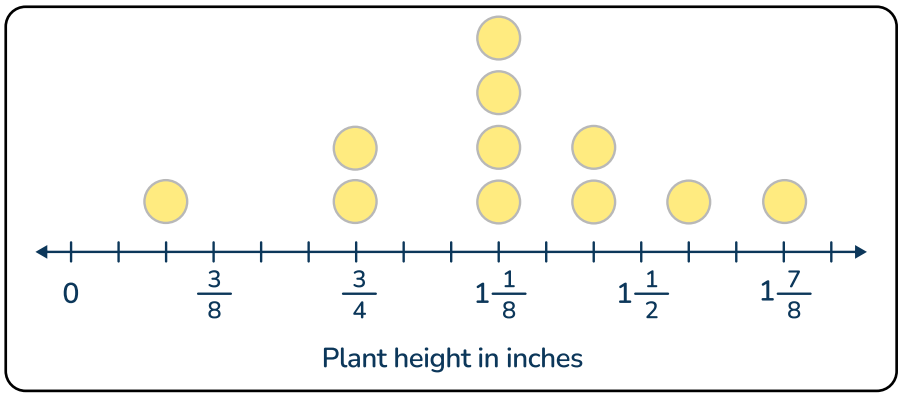
33 Blake and her sister ordered two pizzas for dinner. The shaded part of the circle represents the portion of the pizza Blake's sister ate. Blake ate $\frac{1}{4}$ more than her sister.



How much pizza was left over?

A. $\frac{3}{8}$
B. $\frac{1}{8}$
C. $\frac{8}{8}$
D. $\frac{5}{8}$

34 A class is growing plants for a science experiment. Below is the height of the plants after one week.



What is the difference between the shortest and tallest plants?

A. 2 inch

B. $1\frac{5}{8}$ inches

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

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

---

35 Dax has $\frac{7}{8}$ of a cup of puppy food. He uses it to feed 3 puppies equally. How much food does each puppy get?

Which expression fits the story context?

A. $\frac{7}{8} \times 3$

B. $3 \times \frac{7}{8}$

C. $\frac{7}{8} \div 3$

D. $3 \div \frac{7}{8}$

36 Complete the statement: 400 is ____ times the size of 4,000.

A. 100

B. $\frac{1}{10}$

C. 10

D. $\frac{1}{100}$

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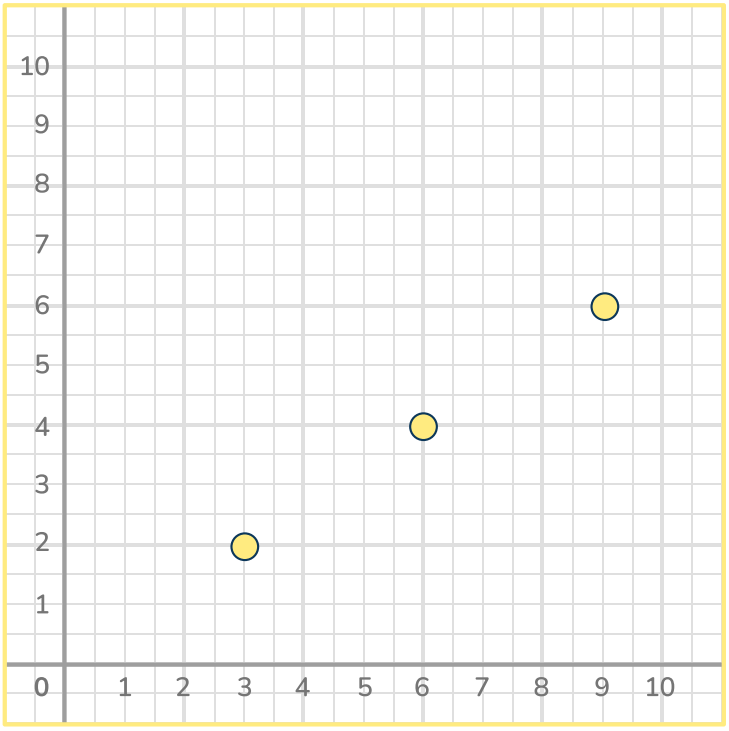
37 The graph below shows ordered pairs that make two patterns.



What are the rules for the two patterns shown by the ordered pairs?

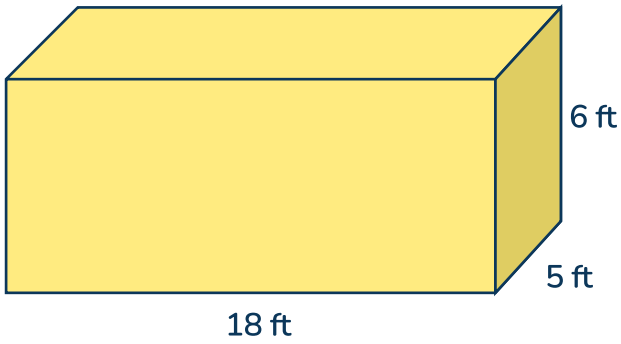
A. x-coordinate: Add 3
y-coordinate: Add 2

B. x-coordinate: Add 2
y-coordinate: Add 3

C. x-coordinate: Multiply by 3
y-coordinate: Multiply by 2

D. x-coordinate: Multiply by 2
y-coordinate: Multiply by 2

38 What is the volume of the rectangular prism?



A. 456 cubic feet
B. 116 cubic feet
C. 540 cubic feet
D.162 cubic feet

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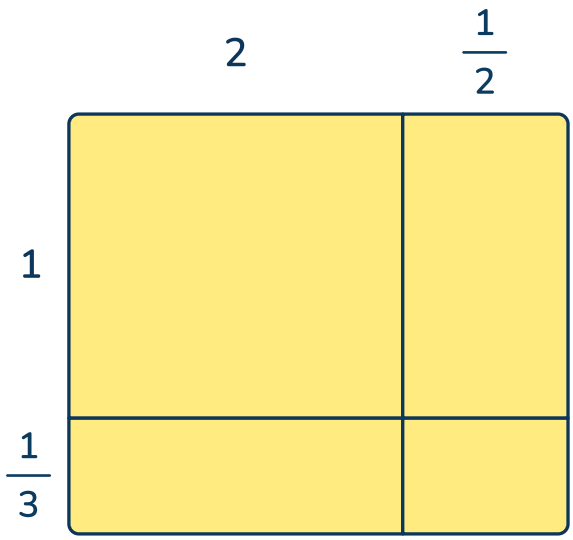
39 How many centimeters are in 1.2 meters?

A. 0.12 cm
B. 1.2 cm
C. 12 cm
D. 120 cm

40 Leo is solving $2\frac{1}{2} \times 1\frac{1}{3}$. He draws the model below.



Which expression represents Leo's area model?

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

B. $2 + 2\frac{1}{2} + 2\frac{1}{3} + \frac{1}{6}$

C. $\frac{2}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

D. $2 + \frac{1}{2} + \frac{2}{3} + \frac{1}{6}$

Standard: 5.NBT.3
DOK 3
Short Answer Response - 3 points

41 The height of a plant is approximately 42.6 cm. If the height was rounded to the nearest tenth, what are three possible actual heights of the plant?

Write the three numbers:

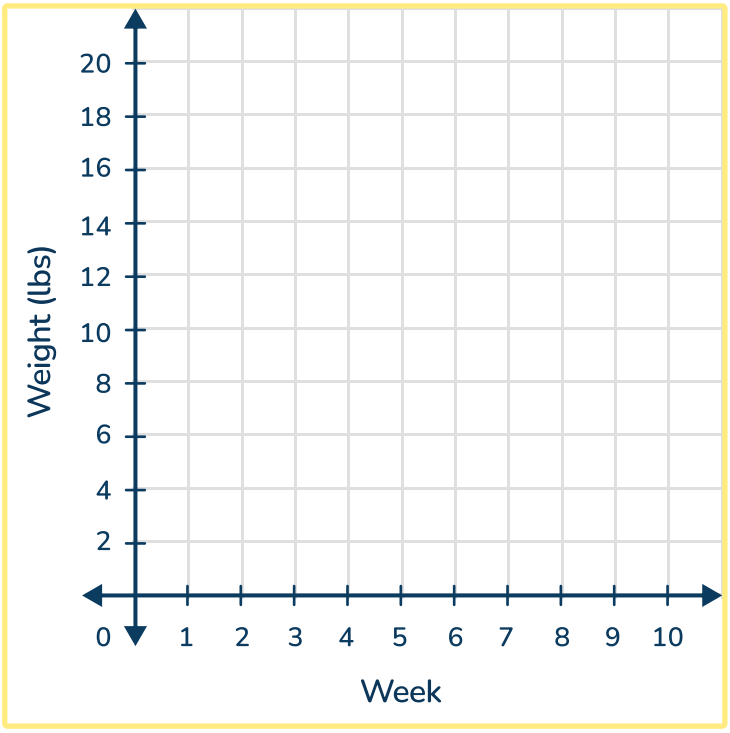
Explain how you solved.

Extended response - 4 points
Standard: 5.G.1, 5.G.2
DOK 3

42 Violet adopted a new puppy and then measured the weight of the puppy each week for ten weeks, rounded to the nearest pound. The table shows the data Violet collected.

Week	1	2	3	4	5	6	7	8	9	10
Weight	6	7	9	10	11	12	15	16	17	18

Part A:
Plot each pair of numbers on the coordinate grid below.



Part B:
Between which two weeks did the puppy make the greatest amount of growth? Use the completed grid to explain how you know.

_____

_____

_____

_____

Extended response - 4 points
Standard: 5.NF.1, 5.NF.2
DOK 3

43 Beckham solved the following equation:

$$\frac{1}{5} + \frac{3}{4} = \frac{4}{9}$$

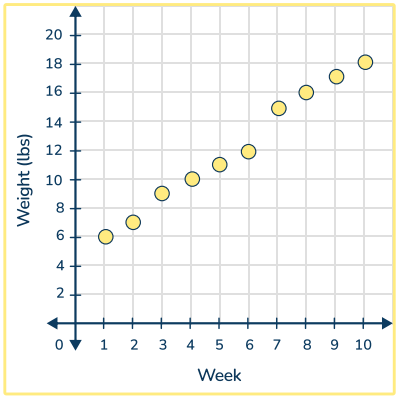
Is Beckham's answer reasonable? Decide without solving (using mental estimation or benchmark fractions to decide) and explain your thinking.

Answer Key - Multiple Choice

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

Item number	Correct answer	Standard(s)	DOK
20	B	**5.OA.3**	DOK 3
21	A	**5.NF.6**	DOK 2
22	C	**5.NBT.4**	DOK 1
23	D	**5.G.2**	DOK 2
24	B	**5.OA.1**	DOK 1
25	D	**5.MD.5c**	DOK 2
26	C	**5.NBT.6**	DOK 2
27	B	**5.NF.5**	DOK 3
28	C, D	**5.G.3, 5.G.4**	DOK 1
29	A	**5.MD.1**	DOK 2
30	A	**5.NBT.2**	DOK 1
31	D	**5.NF.3, 5.NF.4a, 5.NF.6**	DOK 2
32	D	**5.G.1**	DOK 1
33	C	**5.NF.1, 5.NF.2**	DOK 2
34	B	**5.MD.2**	DOK 2
35	C	**5.NF.7a**	DOK 2
36	B	**5.NBT.1**	DOK 1
37	A	**5.OA.3**	DOK 3
38	C	**5.MD.5b**	DOK 1
39	D	**5.MD.1**	DOK 1
40	D	**5.NF.4b**	DOK 2

Item	KEY	Rationale
41	3 points	To receive 3 points, students need to write three correct numbers and provide a correct explanation that shows decimal place value understanding. (Example answers: 42.63, 42.59, etc.)
	2 points	To receive 2 points, students need to write at least 2 correct numbers **AND** provide a correct explanation that shows decimal place value understanding.
	1 point	To receive 1 point, students need to write at least 2 correct numbers **OR** provide a correct explanation that shows decimal place value understanding.
	0 points	Students will receive 0 points if they leave the response blank, or if write two or more incorrect numbers **AND** fail to write a response that shows decimal place value understanding.

Item	KEY	Rationale
42	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:** Students must recognize that they can create ordered pairs from the data in the table. The ordered pairs are as follows: (1,6) (2,7) (3,9) (4,10) (5,11) (6,12) (7,15) (8,16) (9,17) (10,18) Each ordered pair should be correctly plotted on the coordinate grid.  **Part B:** Students should correctly answer that the puppy made the greatest amount of growth between weeks 6 and 7. They should also explain that this is shown on the grid as the points make the greatest vertical jump between those two weeks (12 lbs to 15 lbs)
	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 how the completed coordinate grid shows the greatest amount of growth between weeks 6 and 7.
	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. (Example: incorrectly plot the points on the graph) • only answer one part correctly. **OR** • fail to explain in a way that lets the teacher know the student can interpret the completed grid correctly.
	1 point	To receive 1 point, students may get one part of the answer correct (such as plotting the points on the grid).
	0 points	To receive 0 points, the student must leave the answer blank or get no parts of the problem correct.

Item	KEY	Rationale
43	4 points	The student clearly explains that Beckham's answer is not reasonable. Student's response clearly shows fraction number sense, including (but not limited to)... • That $\frac{3}{4}$ is greater than $\frac{1}{2}$ and $\frac{3}{9}$ is less than $\frac{1}{2}$ • Therefore adding $\frac{1}{5}$ to $\frac{3}{4}$ should be more than $\frac{1}{2}$, not less **OR** • That $\frac{3}{4}$ is $\frac{1}{4}$ away from 1 whole • That $\frac{3}{9}$ is $\frac{6}{9}$ away from 1 whole • Therefore adding $\frac{1}{5}$,will be a sum close to 1 whole, which $\frac{3}{9}$ is not
	3 points	Student explains that Beckham's answer is not reasonable. Student's response clearly shows fraction number sense, including (but not limited to) the examples above, however, the student makes 1 mistake or leaves out 1 part.
	2 points	Student states that Beckham's answer is not reasonable. Student's response shows some fraction number sense (correct benchmarks or estimation value for individual fractions), but the student does not connect this to the overall equation or parts of the explanation are unclear.
	1 point	Student's response shows some fraction number sense (correct benchmarks or estimation value for individual fractions), but the student makes 1 or 2 mistakes **AND** parts of the explanation are unclear. **OR** Student explains that Beckham added the denominators when he should have found common denominators, which is not the correct algorithm. However, the student does not give an explanation that shows fraction number sense.
	0 points	The student leaves the response blank. **OR** The student makes more than 2 mistakes when estimating or using fraction benchmarks. **OR** The student's explanation shows little to no fraction number sense.

ANSWERS SORTED BY CCSS STRAND

OA			
Item number	Correct answer	Standard(s)	DOK
5	C	**5.OA.2**	DOK 1
11	A	**5.OA.1**	DOK 1
13	D	**5.OA.3**	DOK 3
20	B	**5.OA.3**	DOK 3
24	B	**5.OA.1**	DOK 1
37	A	**5.OA.3**	DOK 3

NBT			
Item number	Correct answer	Standard(s)	DOK
1	C	**5.NBT.7**	DOK 2
4	C	**5.NBT.5**	DOK 2
10	B	**5.NBT.7**	DOK 2
12	A	**5.NBT.3.b**	DOK 2
15	B	**5.NBT.3.a**	DOK 1
17	C	**5.NBT.3.a**	DOK 1
22	C	**5.NBT.4**	DOK 1
26	C	**5.NBT.6**	DOK 2
30	A	**5.NBT.2**	DOK 1
36	B	**5.NBT.1**	DOK 1
41	Short answer response	**5.NBT.3**	DOK 3

NF			
Item number	Correct answer	Standard(s)	DOK
3	B, C	5.NF.5a, **5.NF.5b**	DOK 3
6	A	**5.NF.1, 5.NF.2**	DOK 2
9	D	5.NF.7.b, **5.NF.7**.c	DOK 2
14	C	**5.NF.3**	DOK 2
18	D	**5.NF.4.b**	DOK 2
21	A	**5.NF.6**	DOK 2
27	B	**5.NF.5**	DOK 3
31	D	5.NF.3, 5.NF.4.a, **5.NF.6**	DOK 2
33	C	5.NF.1, **5.NF.2**	DOK 2
35	C	**5.NF.7a**	DOK 2
40	D	**5.NF.4b**	DOK 2
43	Extended Response	**5.NF.1, 5.NF.2**	DOK 3

MD			
Item number	Correct answer	Standard(s)	DOK
2	D	**5.MD.1**	DOK 1
7	B	5.MD.3a, 5.MD.3b, 5.MD.4, 5.MD.5a **5.MD.5b**	DOK 1
19	A	**5.MD.2, 5.NF.1**	DOK 2
25	D	**5.MD.5.c**	DOK 2
29	A	**5.MD.1**	DOK 2
34	B	**5.MD.2**	DOK 2
38	C	**5.MD.5b**	DOK 1
39	D	**5.MD.1**	DOK 1

G			
Item number	Correct answer	Standard(s)	DOK
8	A	**5.G.1**	DOK 1
16	B, E	**5.G.3,** 5.G.4	DOK 2
23	D	**5.G.2**	DOK 2
28	C, D	**5.G.3,** 5.G.4	DOK 1
32	D	**5.G.1**	DOK 1
42	Extended Response	**5.G.1, 5.G.2**	DOK 3

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