THIRD SPACE LEARNING

# 5th Grade Michigan State Practice Math Test

## Michigan 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 containers of strawberries and 1 bag of oranges?

A. $13.54
B. $15.53
C. $10.64
D. $16.73

**2** What fraction of a meter is 25 centimeters?

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

B. $\frac{1}{25}$

C. $\frac{1}{5}$

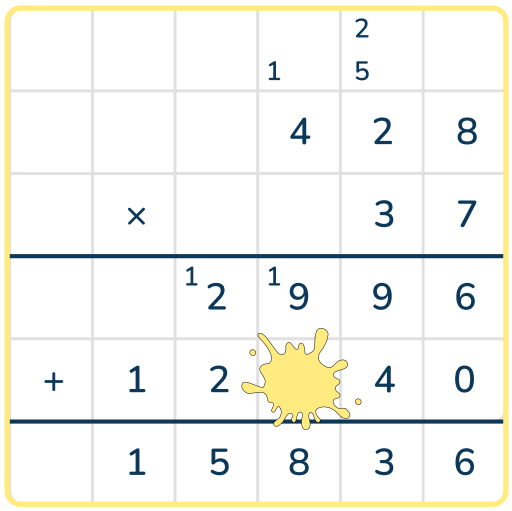
D. $\frac{5}{100}$

---

**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

**5** Which expression shows '6 less than the product of 4 and 8'?

A. $6 - 8 \div 4$
B. $4 \times 8 - 6$
C. $(4 + 8) - 6$
D. $6 - 8 \times 4$

6 Francesca is filling her new fish pond with water. The pond can hold $15\frac{2}{3}$ gallons of water. So far, she has poured in $9\frac{2}{5}$ gallons. How much more water does she need to add to fill the pond? Answer in lowest terms.

A. $6\frac{1}{2}$ gallons

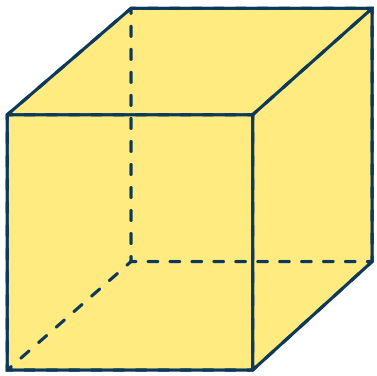
B. $6\frac{6}{15}$ gallons

C. $6\frac{4}{15}$ gallons

D. $5\frac{4}{5}$ gallons

---

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



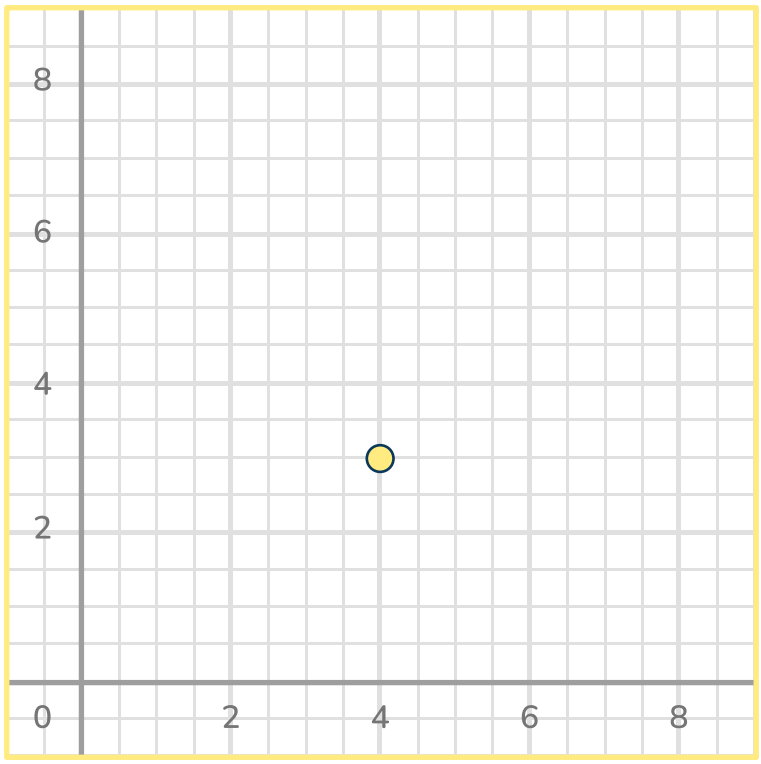

A. $4 \times 4 \times 4$

B. $4 \times 6$

C. $4 + 4 + 4 + 4 + 4 + 4$

D. $6 \times (4 + 4 + 4 + 4)$

8




What are the coordinates of the point shown?

A. (3, 4)
B. (4, 4)
C. (2, 3)
D. (4, 3)

---

9 Lila is tracking the growth of a plant for a science project. The tree grows $\frac{1}{4}$ of an inch each week and has grown a total of 3 inches taller. How many weeks has Lila been tracking the plant's growth?

A. 7 weeks

B. $\frac{1}{12}$ of a week

C. 4 weeks

D. 12 weeks

10 Alex and his 5 friends go out for lunch. The total bill comes to $84.30. They decide to split the bill equally. How much will each person pay?

A. $14.05
B. $421.50
C. $16.86
D. $505.80

---

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

$24 - 12 \div 2 - 4 \times 2$

A. 4
B. 10
C. 20
D. -2

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

| Runner | Time (minutes) |
|---|---|
| 1 | 6.48 |
| 2 | 7.095 |
| 3 | 7.19 |
| 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

---

**13** Ella wrote down two patterns.

Pattern A: 0, 6, 12, 18, 24, 30...
Pattern B: 0, 4, 8, 12, 16, 20...

Which statement correctly compares Ella's patterns?

A. The numbers in both patterns start odd, and then become even.
B. The numbers in both patterns alternate between odd and even.
C. Each number in Pattern B is 2 less than the corresponding number in Pattern A.
D. The numbers in Pattern A are $1\frac{1}{2}$ times the numbers in Pattern B.

14 Five pizzas are shared equally among 8 friends. What fraction of a pizza will each friend get?

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

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

C. $\frac{1}{5}$

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

---

15 What number is four hundred eight and two hundred thirty-one thousandths?

A. 408.231
B. 4,008.231
C. 408,231
D. 408.0231

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

---

17 What is the correct way to write 580.907 in expanded form?

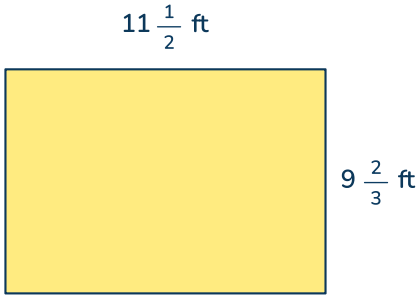
A. $5 \times 100 + 8 \times 10 + 9 \times (\frac{1}{10}) + 7 \times (\frac{1}{1{,}000})$

B. $5 \times 100 + 8 \times 1 + 9 \times (\frac{1}{100}) + 7 \times (\frac{1}{1{,}000})$

C. $5 \times 100 + 8 \times 10 + 9 \times 1 + 7 \times (\frac{1}{100})$

D. $5 \times (\frac{1}{100}) + 8 \times (\frac{1}{1}) + 9 \times (\frac{1}{10}) + 7 \times (\frac{1}{1{,}000})$

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




A. $42\frac{2}{6}$ square feet

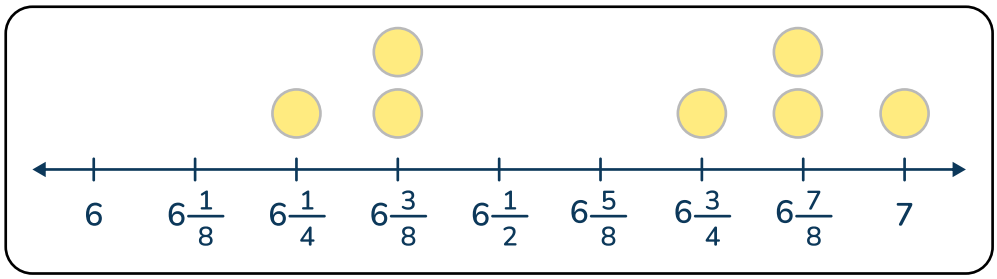
B. $99\frac{2}{6}$ square feet

C. $111\frac{1}{6}$ square feet

D. $101\frac{1}{3}$ square feet

---

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




A. $12\frac{5}{8}$ inches

B. 19 inches

C. $18\frac{5}{8}$ inches

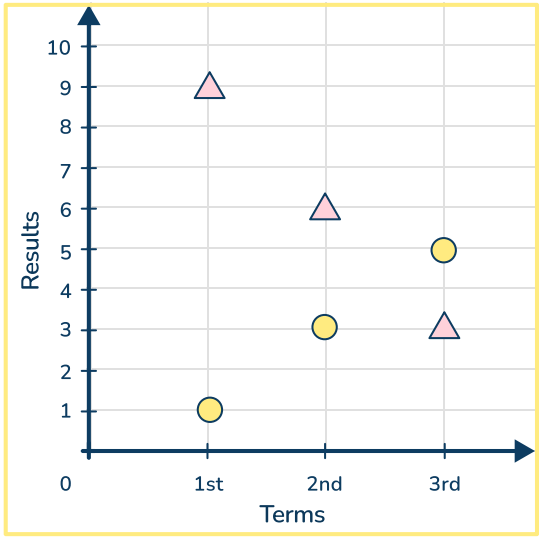
D. $20\frac{3}{4}$ inches

**20** The rules for two patterns are below.

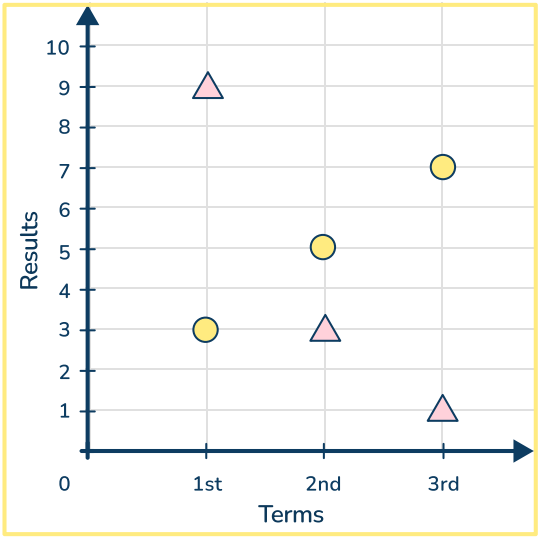
- Pattern A: Start at 3. Add 2.
- Pattern B: Start at 9. Multiply by $\frac{1}{3}$.

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

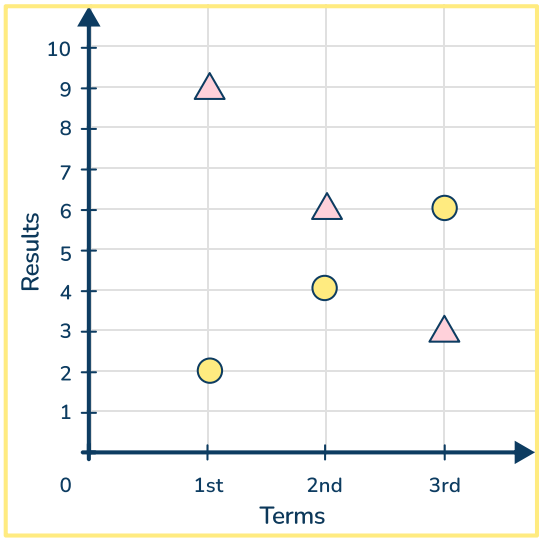
A.



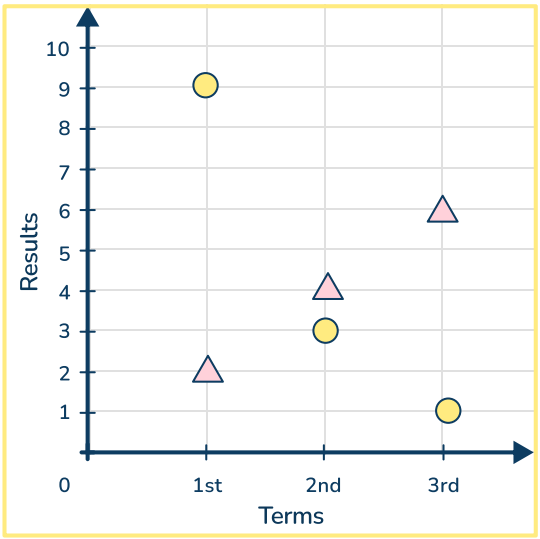

B.




C.



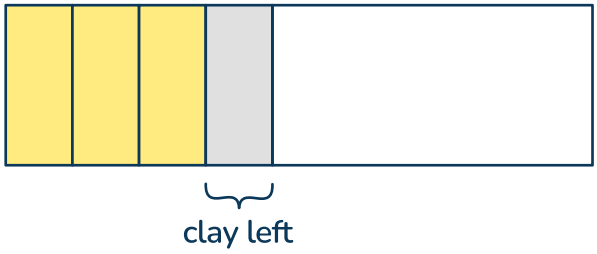

D.



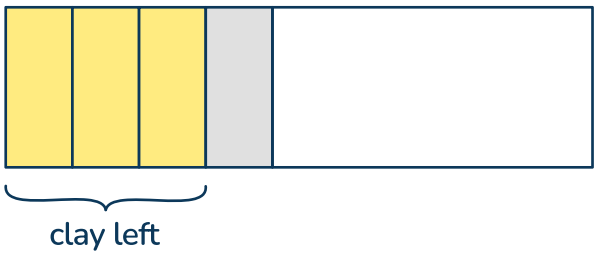
21 Will had $\frac{1}{2}$ of a pound of clay. He used $\frac{3}{4}$ of the clay for a project. To find how much of a pound of sand he has left, Will draws a model that represents 1 pound of clay.

Choose the model that shows the correct model.

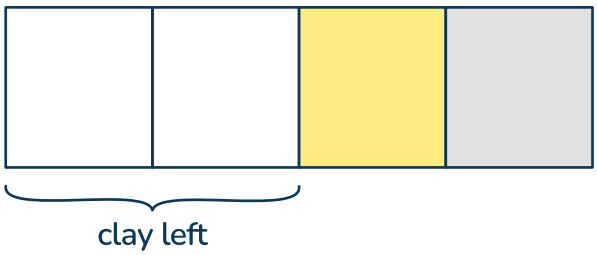
A.



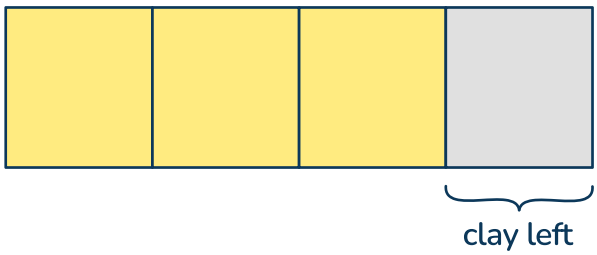

B




C.




D.

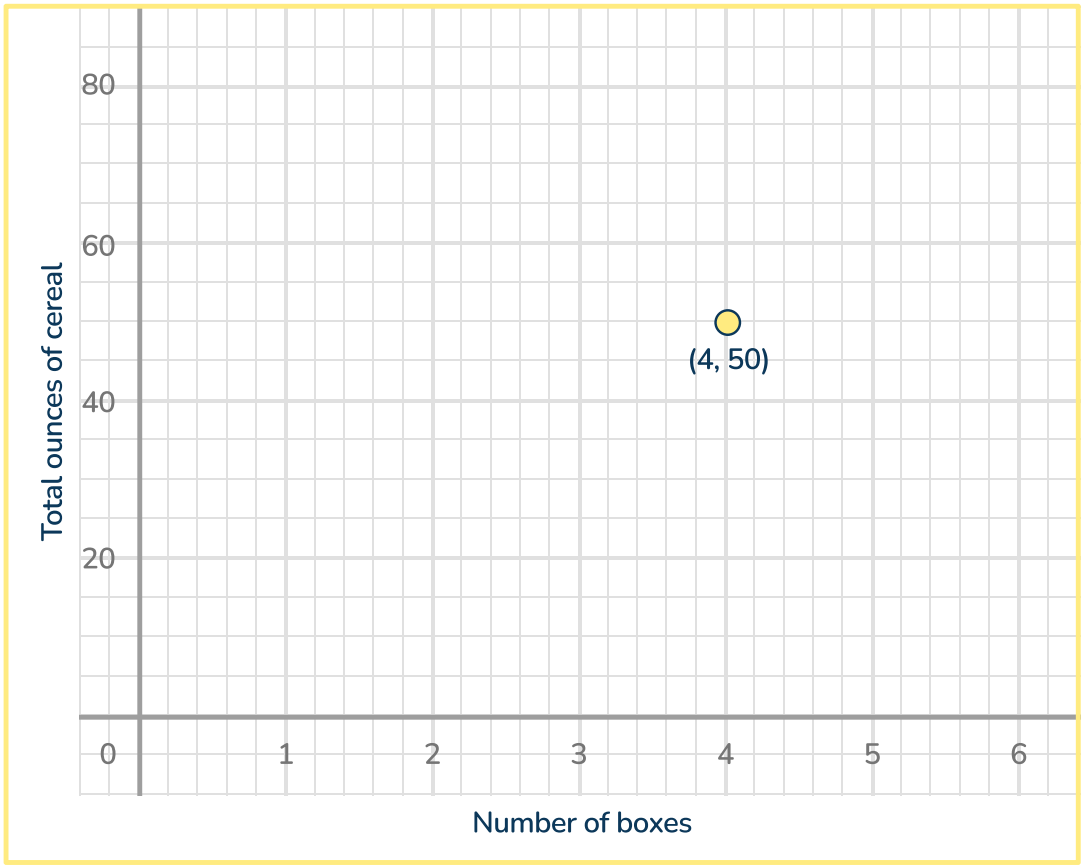


**22** Round 57,240.718 to the nearest hundredth.

A. 57,200
B. 57,240.7
C. 57,240.700
D. 57,240.72

---

**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.

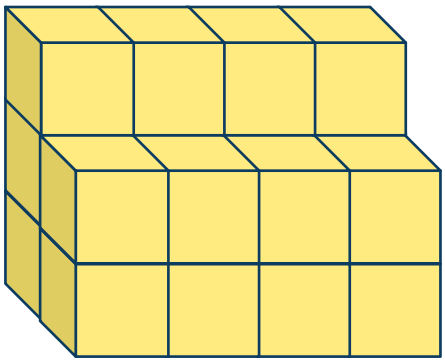
**24** Solve the following equation.

$2(9 \times 5 + 4) - 6 \div 3 + 8$

A. 104
B. 39
C. 122
D. 220

---

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



A. 14
B. 28
C. 20
D. 22

26 Jasmine's bakery has 845 cookies ready to package. The cookies will be put into boxes of 28 and sold for $5.00 per box. How many full boxes of cookies can Jasmine make?

A. 30 boxes
B. 150 boxes
C. 31 boxes
D. 169 boxes

---

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 one pair of parallel sides? Select all the correct answers.

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

---

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

A. 180 minutes
B. 133 minutes
C. 195 minutes
D. 200 minutes

**30** Which equation equals 0.06?

A. $60 \times 10^2 = ?$
B. $600 \times 10^3 = ?$
C. $60 \div 10^3 = ?$
D. $6{,}000 \div 10^2 = ?$

---

**31** A soup recipe requires $1\frac{2}{5}$ liters of broth. How many liters of broth would be needed to make $6\frac{1}{2}$ soup recipes?

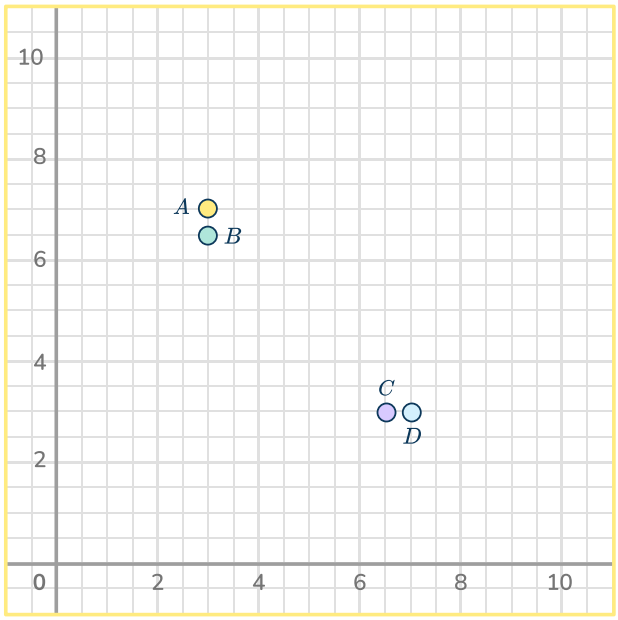
A. $4\frac{9}{14}$ liters

B. $9\frac{1}{10}$ liters

C. $7\frac{8}{10}$ liters

D. $6\frac{1}{5}$ liters

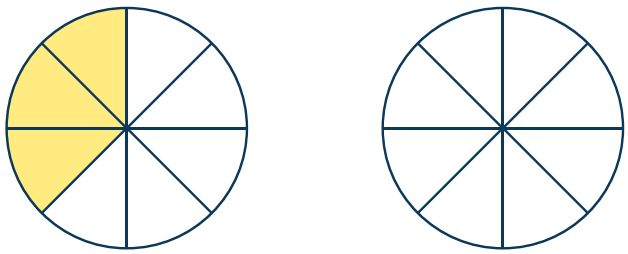
**32** Which point shows (7, 3)?




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

---

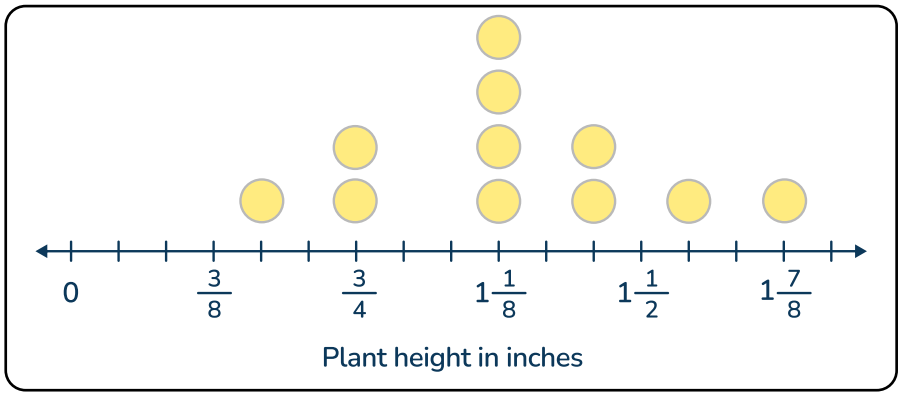
**33** Blake and her sister ordered two pizzas for dinner. The shaded part of the circle represents the portion of the pizza Blake's sister ate. Blake ate $\frac{1}{4}$ more than her sister.



How much pizza was left over?

A. $\frac{8}{8}$ or 1 whole
B. $\frac{3}{8}$
C. $\frac{1}{8}$
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 inches

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

C. $1\frac{3}{8}$ of an inch

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

---

**35** Story: 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: 50 is ____ times the size of 5,000.

A. 100

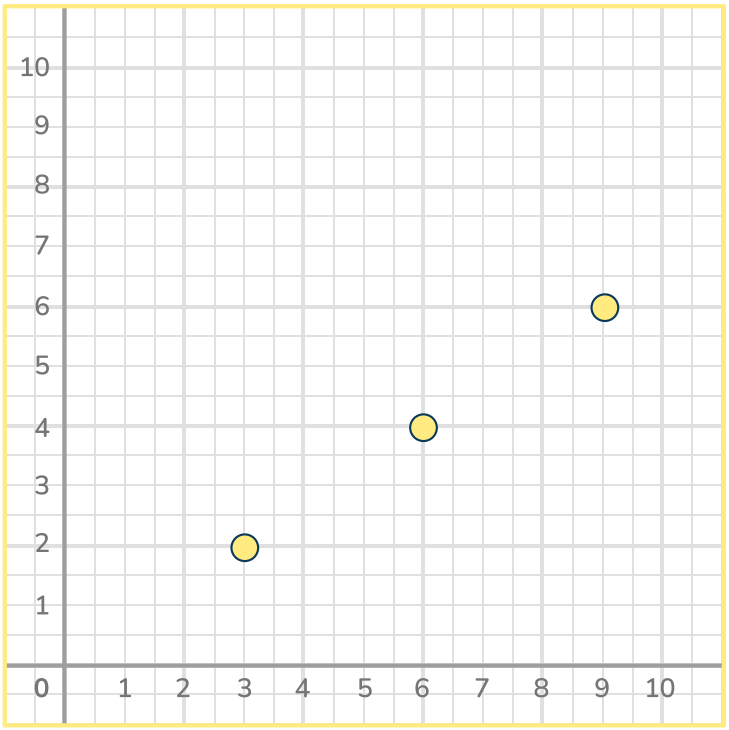
B. $\frac{1}{100}$

C. 10

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

---

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




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

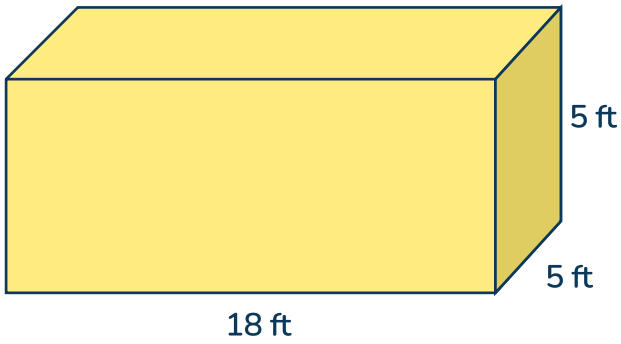
A. $x$-coordinate: Add 3
$y$-coordinate: Add 2

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?



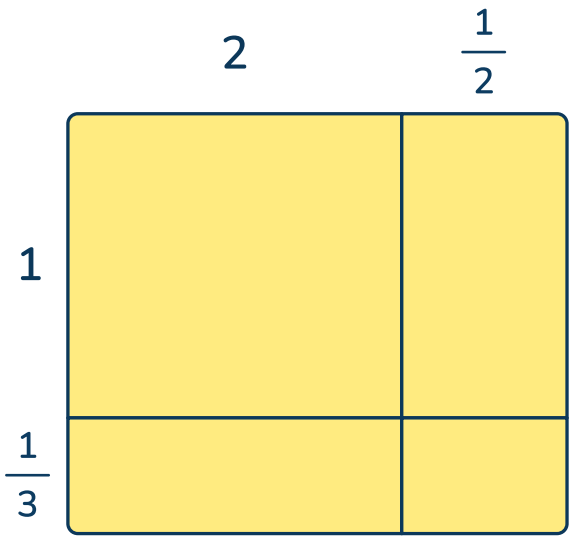

A. 180 square feet
B. 84 cubic feet
C. 450 cubic feet
D. 112 cubic feet

---

**39** How many centimeters are in 0.8 meters?

A. 80 cm
B. 0.08 cm
C. 8 cm
D. 800 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.

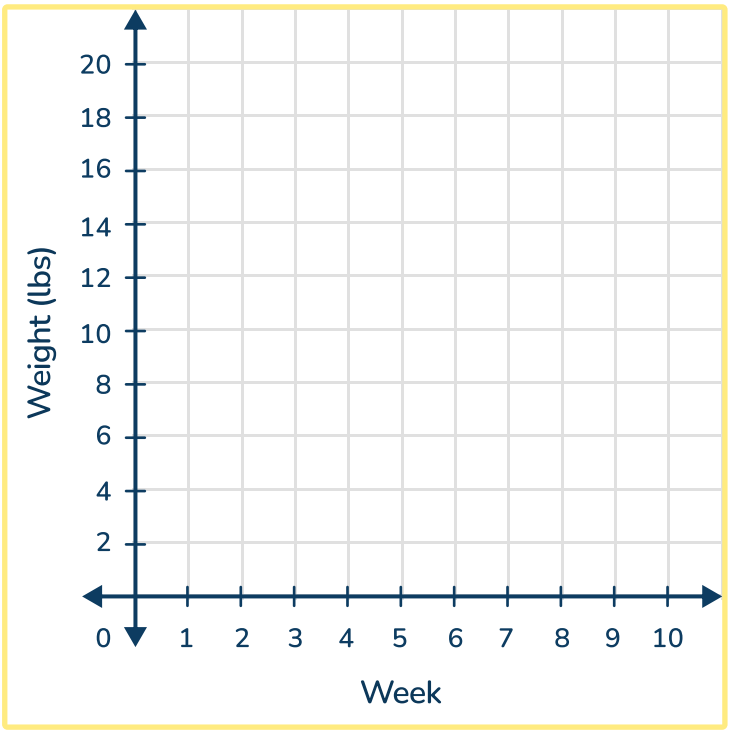
**Extended response - 4 points**
**Standard: 5.G.1, 5.G.2**
**DOK 3**

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:

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

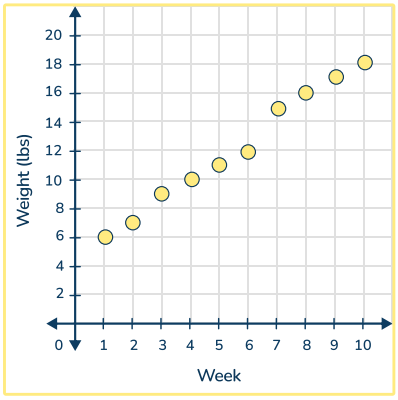
Is Beckham's answer reasonable? Decide without solving (using mental estimation or benchmark fractions to decide) and explain your thinking.

# Answer Key - Multiple Choice

| Item number | Correct answer | Standard(s) | DOK |
|---|---|---|---|
| 1 | B | **5.NBT.7** | DOK 2 |
| 2 | A | **5.MD.1** | DOK 1 |
| 3 | B, C | **5.NF.5a, 5.NF.5b** | DOK 2 |
| 4 | C | **5.NBT.5** | DOK 2 |
| 5 | B | **5.OA.2** | DOK 1 |
| 6 | C | **5.NF.1, 5.NF.2** | DOK 2 |
| 7 | A | **5.MD.3a, 5.MD.3b, 5.MD.4, 5.MD.5a 5.MD.5b** | DOK 1 |
| 8 | D | **5.G.1** | DOK 1 |
| 9 | D | **5.NF.7.b, 5.NF.7.c** | DOK 2 |
| 10 | A | **5.NBT.7** | DOK 2 |
| 11 | B | **5.OA.1** | DOK 1 |
| 12 | D | **5.NBT.3b** | DOK 2 |
| 13 | D | **5.OA.3** | DOK 3 |
| 14 | B | **5.NF.3** | DOK 2 |
| 15 | A | **5.NBT.3a** | DOK 1 |
| 16 | B, E | **5.G.3, 5.G.4** | DOK 2 |
| 17 | A | **5.NBT.3a** | DOK 1 |
| 18 | C | **5.NF.4b** | DOK 2 |
| 19 | B | **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 | D | **5.NBT.4** | DOK 1 |
| 23 | D | **5.G.2** | DOK 2 |
| 24 | A | **5.OA.1** | DOK 1 |
| 25 | C | **5.MD.5c** | DOK 2 |
| 26 | A | **5.NBT.6** | DOK 2 |
| 27 | B | **5.NF.5** | DOK 3 |
| 28 | A, C, D | **5.G.3, 5.G.4** | DOK 1 |
| 29 | D | **5.MD.1** | DOK 2 |
| 30 | C | **5.NBT.2** | DOK 1 |
| 31 | B | **5.NF.3, 5.NF.4a, 5.NF.6** | DOK 2 |
| 32 | D | **5.G.1** | DOK 1 |
| 33 | A | **5.NF.1, 5.NF.2** | DOK 2 |
| 34 | C | **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 | A | **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.<br><br>**Part A**: Students must recognize that they can create ordered pairs from the data in the table. The ordered pairs are as follows:<br>(1,6) (2,7) (3,9) (4,10) (5,11) (6,12) (7,15) (8,16) (9,17) (10,18)<br><br>Each ordered pair should be correctly plotted on the coordinate grid.<br>  <br><br>**Part B**: Students should correctly answer that the puppy made the greatest amount of growth between week 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 point | 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 point | In order to receive 2 points, students may<br>• 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)<br>• only answer one part correctly.<br>OR<br>• 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)...<br>• That $\frac{3}{4}$ is greater than $\frac{1}{2}$ and $\frac{3}{9}$ is less than $\frac{1}{2}$<br>• Therefore adding $\frac{1}{5}$ to $\frac{3}{4}$ should be more than $\frac{1}{2}$, not less<br>OR<br>• That $\frac{3}{4}$ is $\frac{1}{4}$ away from 1 whole<br>• That $\frac{3}{9}$ is $\frac{6}{9}$ away from 1 whole<br>• Therefore adding $\frac{1}{5}$(which is a little smaller than $\frac{1}{2}$),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.<br>OR<br>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.<br>OR<br>The student makes more than 2 mistakes when estimating or using fraction benchmarks.<br>OR<br>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 | B | **5.OA.2** | DOK 1 |
| 11 | B | **5.OA.1** | DOK 1 |
| 13 | D | **5.OA.3** | DOK 3 |
| 20 | B | **5.OA.3** | DOK 3 |
| 24 | A | **5.OA.1** | DOK 1 |
| 37 | A | **5.OA.3** | DOK 3 |

| NBT | | | |
|---|---|---|---|
| Item number | Correct answer | Standard(s) | DOK |
| 1 | B | **5.NBT.7** | DOK 2 |
| 4 | C | **5.NBT.5** | DOK 2 |
| 10 | A | **5.NBT.7** | DOK 2 |
| 12 | D | **5.NBT.3.b** | DOK 2 |
| 15 | A | **5.NBT.3.a** | DOK 1 |
| 17 | A | **5.NBT.3.a** | DOK 1 |
| 22 | D | **5.NBT.4** | DOK 1 |
| 26 | A | **5.NBT.6** | DOK 2 |
| 30 | C | **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 2 |
| 6 | C | **5.NF.1, 5.NF.2** | DOK 2 |
| 9 | D | 5.NF.7.b, **5.NF.7**.c | DOK 2 |
| 14 | B | **5.NF.3** | DOK 2 |
| 18 | C | **5.NF.4.b** | DOK 2 |
| 21 | A | **5.NF.6** | DOK 2 |
| 27 | B | **5.NF.5** | DOK 3 |
| 31 | B | 5.NF.3, 5.NF.4.a, **5.NF.6** | DOK 2 |
| 33 | A | 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 | A | **5.MD.1** | DOK 1 |
| 7 | A | 5.MD.3a, 5.MD.3b, 5.MD.4, 5.MD.5a **5.MD.5b** | DOK 1 |
| 19 | B | **5.MD.2, 5.NF.1** | DOK 2 |
| 25 | C | **5.MD.5.c** | DOK 2 |
| 29 | D | **5.MD.1** | DOK 2 |
| 34 | C | **5.MD.2** | DOK 2 |
| 38 | C | **5.MD.5b** | DOK 1 |
| 39 | A | **5.MD.1** | DOK 1 |

| G | | | |
|---|---|---|---|
| Item number | Correct answer | Standard(s) | DOK |
| 8 | D | **5.G.1** | DOK 1 |
| 16 | B, E | **5.G.3,** 5.G.4 | DOK 2 |
| 23 | D | **5.G.2** | DOK 2 |
| 28 | A, 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 |

## Do you have a group of students who need a boost in math?

Each student could receive a personalized lesson every week from our specialist one-on-one math tutors.

- Differentiated instruction for each student
- Aligned to your state's standard
- Scaffolded learning to close gaps

## Speak to us


thirdspacelearning.com/us/

(929) 298 - 4593

hello@thirdspacelearning.com


THIRD SPACE LEARNING