4th Grade Michigan State Test

State Test Grade 4

Grade 4

Questions

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

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

1   Which of the following statements correctly compares the two decimals below?
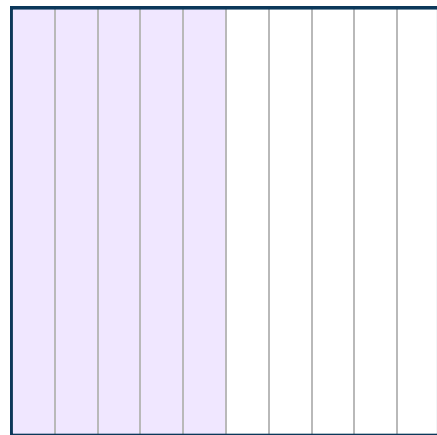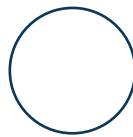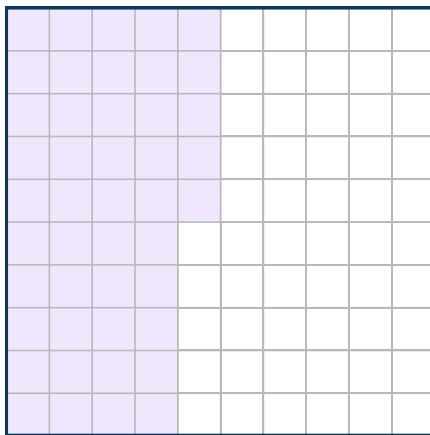
A. 0.45 > 0.5

B. 0.45 < 0.5

C. 0.45 < 0.05

D. 45 > 5

2   Charlotte is organizing a bookshelf with her aunt. They placed 5 times as many mystery books as science fiction books on the shelf. If there are 30 mystery books, how many science fiction books are there?

A. 6 science fiction books

B. 5 science fiction books

C. 150 science fiction books

D. 10 science fiction books

3 Using the following rectangular array, Calvin solves 28 × 16.

200	80
?	48

What missing number will complete Calvin's array?

A. 12

B. 20

C. 120

D. 200

---

4 Which set of numbers are all multiples of 8?

A. 8, 16, 24, 30, 36

B. 1, 2, 4, 8

C. 2, 4, 6, 8, 10

D. 8, 16, 24, 32

5 Jake is installing a fence around his backyard. The total length of the fence is 240 feet. How long is the fence in inches?

(1 foot = 12 inches)

A. 2,880 inches

B. 20 inches

C. 288 inches

D. 2,400 inches

6 How many lines of symmetry does the figure below have?

A. 2

B. 0

C. 1

D. 4

7 A class is comparing the digits' values in the numbers 156,913 and 29,536.

Which statements are true? Select all that apply.

A. The digit 9 in 29,536 is ten times larger than in 156,913.
B. The digit 3 in 156,913 is ten times larger than in 29,536.
C. The digit 5 in 156,913 is one thousand times larger than in 29,536.
D. The digit 9 in 156,913 is one hundred times larger than in 29,536.
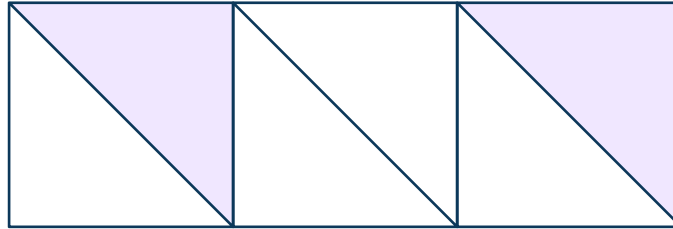E. The digit 6 in 29,536 is one thousand times smaller than in 156,913.

8 Examine the Venn diagram.

Factors of 24   Factors of 36
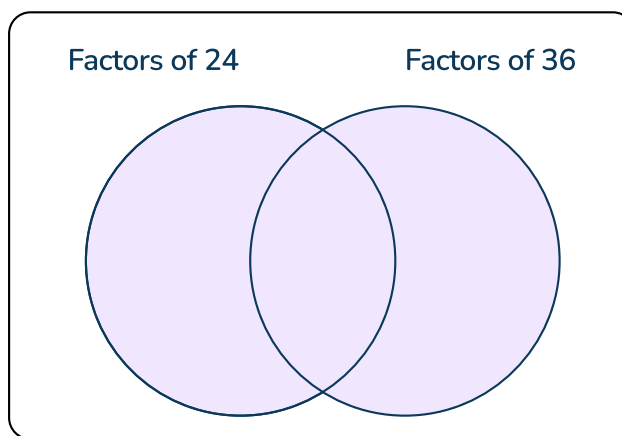
What is the greatest number that belongs in the middle of the Venn diagram?

A. 9
B. 12
C. 8
D. 16

9 Tucker has divided a rectangle into 6 equal parts and shaded 2 of them. Which fractions does Tucker's rectangle show as equivalent?

A. $\dfrac{1}{6} = \dfrac{2}{3}$

B. $\dfrac{2}{6} = \dfrac{2}{3}$

C. $\dfrac{2}{4} = \dfrac{1}{2}$

D. $\dfrac{1}{3} = \dfrac{2}{6}$

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10 Priya is organizing a charity drive and is packing canned goods into boxes. She places 8 cans in each box. How many boxes does she need for 523 cans of food?

A. 63

B. 66

C. 65

D. $65\dfrac{3}{8}$
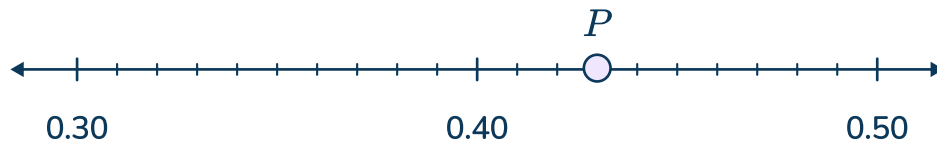
11 The dot plot shows the lengths of Larissa's ribbons.

Length (feet)
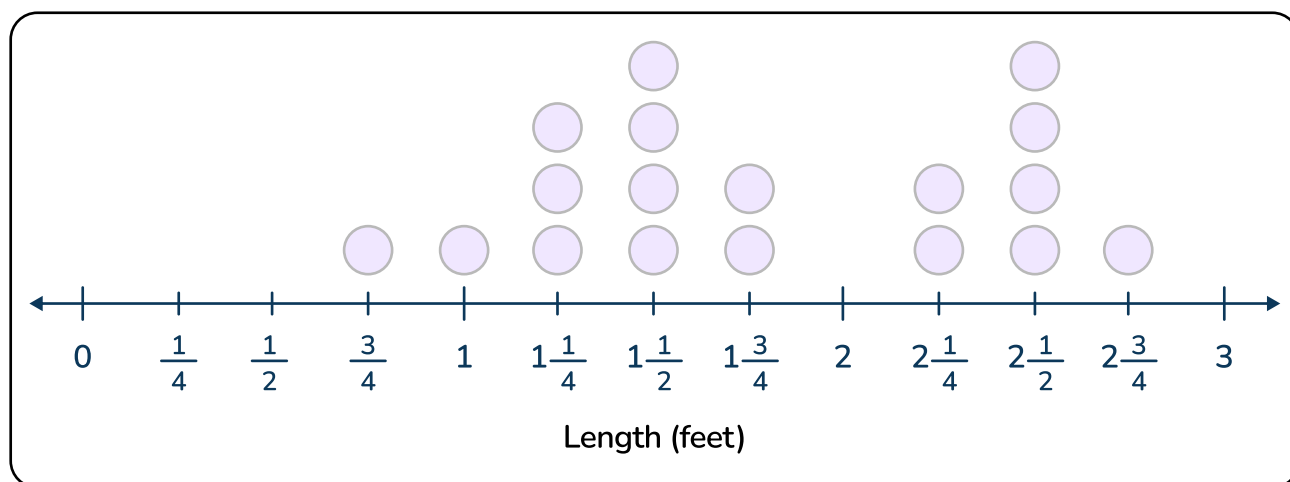
What is the difference between the longest and shortest ribbon?

A. 2 feet

B. $2\frac{3}{4}$ feet

C. 1 foot

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

12 Which of the following numbers round to 700 when rounded to the nearest hundred? Select all that apply.
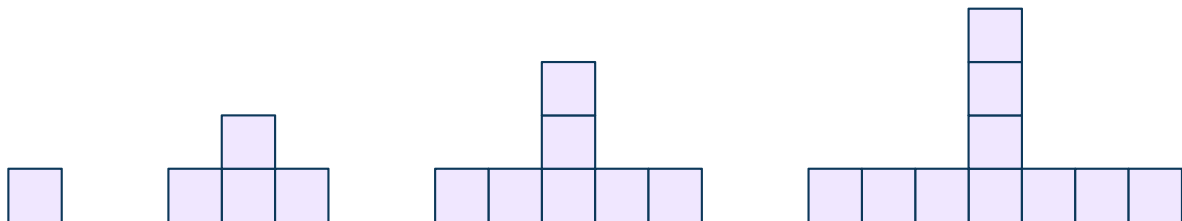
A. 783

B. 745

C. 647

D. 651

E. 589

13 What is the value of point P on the number line below?

A. 0.14
B. 0.37
C. 0.43
D. 0.44

14 Look at the pattern of the figures below. If the pattern continues, how many squares will make up the 6th figure?
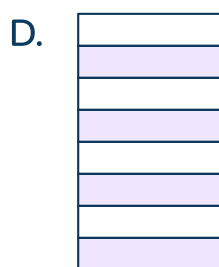

A. 13
B. 16
C. 19
D. 22

15 Joey subtracted with the standard algorithm.

	6,	9	8	2
−	2,	7	3	5
	4,	2	5	3

What mistake did Joey make?

A. He did not make any mistakes.

B. He did not line up the place values correctly.

C. He did not exchange a ten to subtract the ones.

D. He did not regroup the hundreds to make 7 thousands on top.

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16 The shapes are divided into equal parts. Which shape is $\frac{1}{2}$ shaded?

A.

B.

C.

D.
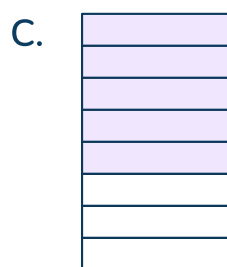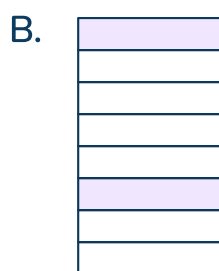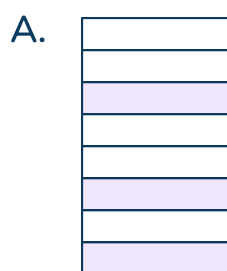
17 The right triangle below is divided into two parts. The measure of angle CBD is 28 degrees. What is the measure of angle ABC?
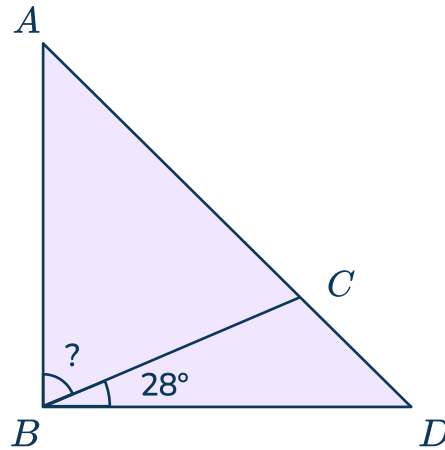
A. 32°

B. 47°

C. 90°

D. 62°

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18 Starting number: 85

Rule: add 12 each time.

Which statement is true about the numbers in the pattern?

A. All the numbers are even.

B. All the numbers are odd.

C. The numbers alternate between even and odd.

D. The first number is odd and the rest are even.

19 Cameron sorts these figures into the same group.
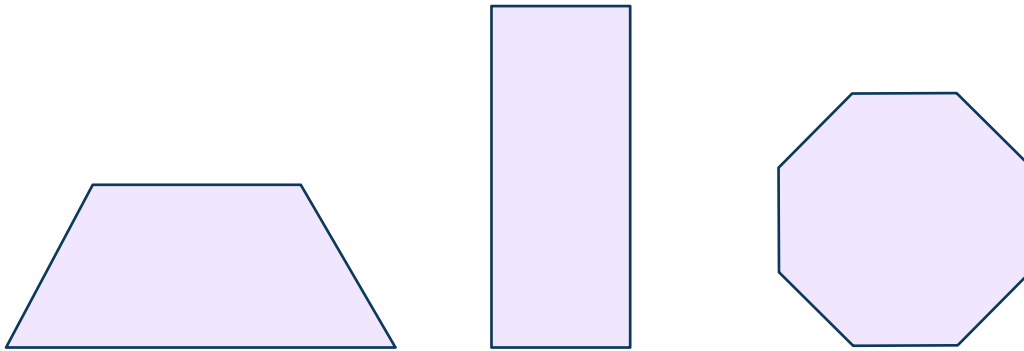
Which statement best describes the figures in this group?

A. Each figure has at least one pair of parallel sides.

B. Each figure has at least one acute angle.

C. Each figure is a quadrilateral.

D. Each figure has at least one obtuse angle.

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20 What is the measure of the angle?
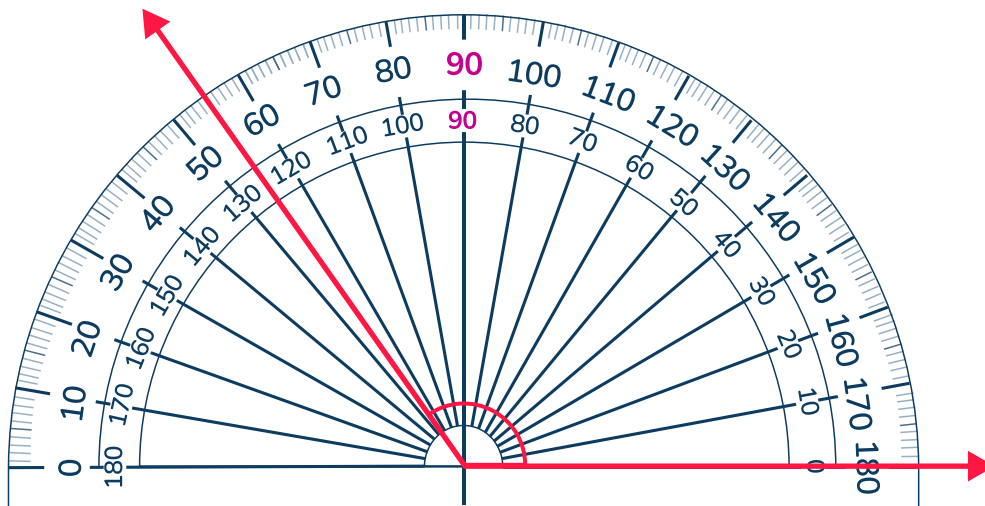
A. 55°

B. 135°

C. 125°

D. 65°

21 Which number comparison is true?

A. $(5 \times 10{,}000) + (9 \times 1{,}000) + (6 \times 1) >$ fifty nine thousand sixty

B. Four thousand three hundred six $= (4 \times 1{,}000) + (3 \times 100) + (6 \times 10)$

C. $(2 \times 1{,}000) + (7 \times 10) + (5 \times 1) <$ two thousand seven hundred five

D. Twelve thousand one hundred seventy $< (1 \times 1{,}000) + (2 \times 100) + (7 \times 10)$

22 Solve $74{,}805 - 25{,}639$.

A. 49,166

B. 49,174

C. 51,234

D. 49,276

23 Which table shows the relationship between pounds and ounces?
    (1 pound = 16 ounces)

A.

ounces	pounds
1	16
2	32
3	48

B.

ounces	pounds
8	1
16	2
24	3

C.

pounds	ounces
1	16
2	32
3	48

D.

ounces	pounds
16	1
24	2
36	3

24 Mia and Javier are planting shrubs in a garden. Mia plants $\frac{7}{8}$ of a row of shrubs. Javier plants 3 times as many as Mia. How many rows of shrubs did Javier plant?

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

B. $2\frac{7}{8}$ rows

C. $2\frac{5}{8}$ rows

D. $3\frac{5}{8}$ rows

25 What is the value of 2,853 x 6?

A. 12,808

B. 17,118

C. 17,808

D. 16,218

26 Which process shows a correct way to add the fractions below?

$$\frac{7}{100} + \frac{3}{10}$$

A. $\frac{7}{100} + \frac{3}{10} = \frac{7+3}{100+10} = \frac{10}{110}$

B. $\frac{7}{100} + \frac{30}{10} = \frac{7+30}{100} = \frac{37}{110}$

C. $\frac{7}{100} + \frac{3}{10} = \frac{6+4}{100} = \frac{10}{100}$

D. $\frac{7}{100} + \frac{30}{100} = \frac{7+30}{100} = \frac{37}{100}$

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27 What are the next 3 numbers in the pattern?

4, 6, 10, 16, 24, ____, ____, ____

A. 26, 28, 30

B. 34, 46, 60

C. 32, 42, 54

D. 30, 36, 42

28 Choose the number line model that shows $6 \times \frac{1}{2}$.

A.

B.

C.

D.
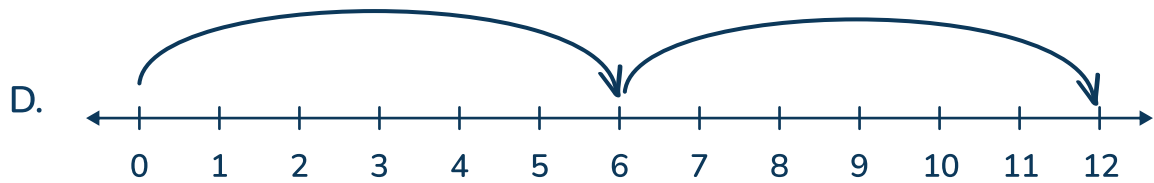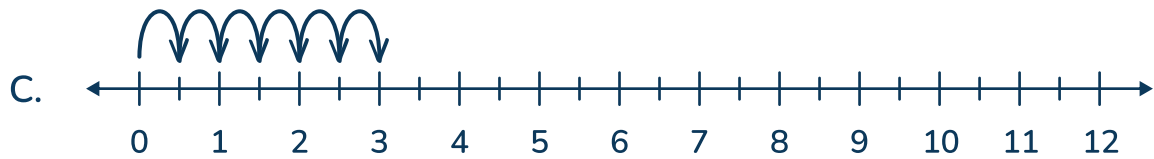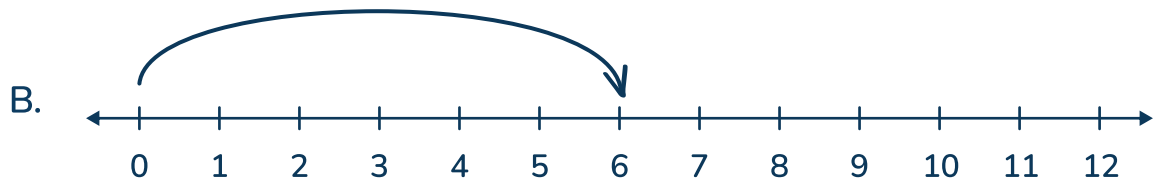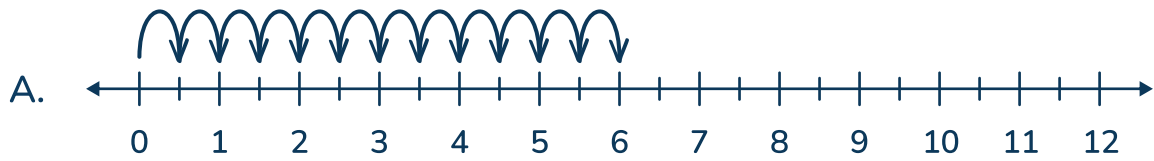
29 Which shows 2,740 rounded to the nearest hundred on a number line?

A.

2,000   2,740   3,000

B.

2,700   2,740   2,800

C.

2,000   2,500   2,740   3,000

D.

2,700   2,740   2,800
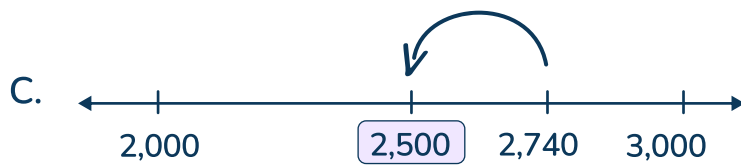
30 What is the area of the rectangle?
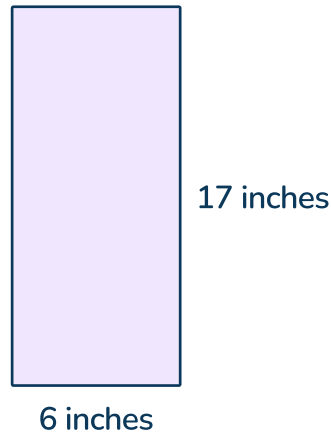
17 inches

6 inches

A. 23 inches

B. 46 inches

C. 102 square inches

D. 92 square inches

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31 How many line segments make up the polygon?
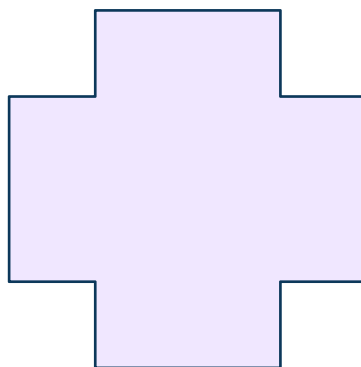
A. 4

B. 10

C. 8

D. 12

32 Chase worked on his homework for 45 minutes. Then he went for a run for 30 minutes before taking a shower. If he started his homework at 3:25 pm and finished showering at 5:00 pm, how long did he spend in the shower?

    A. 40 minutes

    B. 25 minutes

    C. 35 minutes

    D. 20 minutes

33 Which statements makes an equation equal to 36? Select all that apply.

    A. 12 times as many as 3

    B. 4 times as many as 9

    C. 3 times as many as 8

    D. 6 times as many as 4

34 A gallery wall measures 24 feet in length and 15 feet in height. If each piece of artwork requires 6 square feet of space, how many pieces of artwork can be displayed on the wall?

    A. 360
    B. 36
    C. 600
    D. 60

35 Round 52,471 to the nearest hundred.

    A. 52,000
    B. 52,400
    C. 52,500
    D. 52,470

36 Lincoln has 8 cups of juice. He uses $1\frac{5}{12}$ cups to make a smoothie. He uses $3\frac{6}{12}$ cups to make a punch. How much juice is left?

    A. $4\frac{11}{12}$ cups

    B. $3\frac{11}{12}$ cups

    C. $4\frac{1}{12}$ cups

    D. $3\frac{1}{12}$ cups

---

37 Which shape does NOT have a right angle?

A.

B.

C.

D.

E.
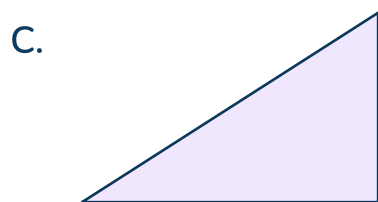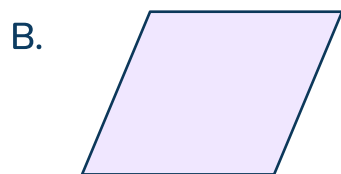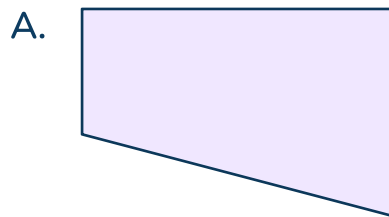
38 Which figures have both parallel and perpendicular sides? Select all correct answers.
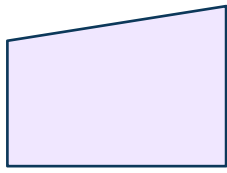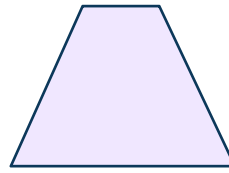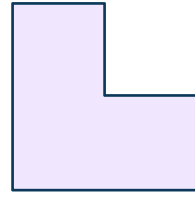
A B C D

A. Figure A
B. Figure B
C. Figure C
D. Figure D
E. None of the figures

---

39 Solve 327,239 + 82,436.

A. 399,675
B. 399,665
C. 309,675
D. 409,675

40 Maria had 1 whole chocolate bar. She ate $\frac{1}{5}$ of the chocolate bar on Thursday, $\frac{2}{5}$ of the chocolate bar on Friday, and $\frac{1}{5}$ of the chocolate bar on Saturday. What fraction of the chocolate bar was left after Saturday?

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

B. $\frac{4}{10}$

C. $\frac{4}{5}$

D. $\frac{11}{15}$

Standard: 4.NBT.6

DOK 3

Short Answer Response - 5 points

41 Tristan used the following strategy to solve $1{,}764 \div 6$.

		2	1	3		
6	) 1,	7	6	4		
	–	6	0	0	**100**	(100×6)
	1,	1	6	4		
	–	6	0	0	**100**	(100×6)
		5	6	4		
	–	5	4	0	**9**	(9×6)
			2	4		
		–	2	4	**4**	(4×6)
				0		
				213		

- Explain Tristan's strategy, including identifying any mistakes.
- Use Tristan's strategy to solve the equation correctly. Show the final quotient.

_____
_____
_____

Standard: 4.OA.2, 4.OA.3

DOK 2

Short Answer Response - 5 points

42 Over the weekend, Maria baked 48 cookies. Diego baked 4 times as many cookies as Maria. Diego baked 2 times as many cookies as Emma.

Write an expression to represent the number of cookies Diego baked and an expression to represent the number of cookies Emma baked. Then, find the value of each expression.

Diego	Emma

Standard: 4.NF.2

DOK 3

Short Answer Response - 5 points

43 A class is comparing the fractions $\frac{3}{4}$ and $\frac{7}{8}$. Below are 3 students' responses.

3 and 4 are smaller than 7 and 8, so $\frac{3}{4}$ is a smaller fraction.

Nolan

Both fractions are 1 part away from 1 whole, and fourths are larger parts, so $\frac{3}{4}$ is smaller.

Jasmine

$\frac{3}{4}$ is equivalent to $\frac{9}{12}$, and since twelfths are larger than eighths, $\frac{3}{4}$ is the larger fraction.
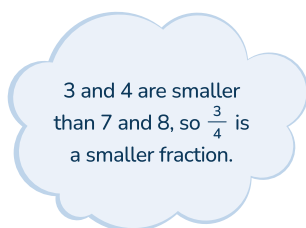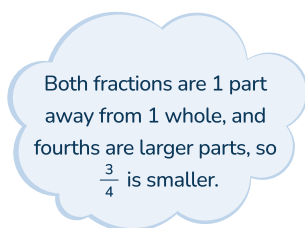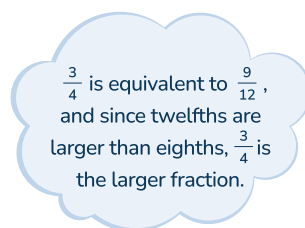
Josiah

Critique each student's response - explaining which parts are correct and identify and fixing any mistakes.

_____

_____

_____

Michigan State Test | Grade 4 | Answers

Item	KEY	Rationale
41	5 points	Student correctly explains the strategy and the mistake Tristan made **and** then uses the strategy to solve correctly (partial product 9 should be 90 (90 × 6 gives us 540, not 9 × 6). Student correctly divides by adding the partial quotients of 100 + 100 + 90 + 4 = 294.
	2.5 points	Student correctly solves using Tristan's strategy OR correctly explains the mistake.
	0 points	Student does not correctly explain the mistake AND does not correctly solve the equation using Tristan's strategy.

Item	KEY	Rationale
42	5 points	To receive 5 points, students need to write a correct expression for both Diego and Emma, and they need to find the correct value of each one. Diego: 4 × 48 = 192 cookies Emma: 192 ÷ 2 = 96 cookies
	2.5 points	Students will receive 2.5 points if they only write one correct expression or if they only calculate one expression correctly.
	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	5 points	Student identifies and explains all the correct and incorrect parts… • Nolan compared the numerator and denominator separately, which is incorrect. Even though he had the right answer, his reasoning was wrong. • Jasmine saw that both numerators were 1 away from a whole, so each fraction is only missing one part. Since fourths are larger, they will be farther away from 1 than eighths. Her answer and reasoning are correct. • Josiah creates equivalent fractions to compare numerators. However, he is wrong when he says twelfths are larger; they are smaller, making ⅞ the bigger fraction.
	2.5 points	Student correctly solves using Tristan's strategy OR correctly explains the mistake.
	0 points	Student does not correctly explain the mistake AND does not correctly solve the equation using Tristan's strategy.

Answer Key - Multiple Choice

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

Michigan State Test | Grade 4 | Answers

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

ANSWERS SORTED BY CCSS STRAND

OA			
Item number	Correct answer	Standard(s)	DOK
2	A	**4.OA.1, 4.OA.2**	DOK 2
4	D	**4.OA.4**	DOK 1
8	B	**4.OA.4**	DOK 2
14	B	**4.OA.5**	DOK 2
18	B	**4.OA.5**	DOK 2
27	B	**4.OA.5**	DOK 2
33	A, B	**4.OA.1**	DOK 1
42	Short answer response	**4.OA.2, 4.OA.3**	DOK 3

Michigan State Test | Grade 4 | Answers

NBT			
Item number	Correct answer	Standard(s)	DOK
3	C	**4.NBT.5**	DOK 2
7	A, E	**4.NBT.1**	DOK 1
10	B	**4.NBT.6, 4.OA.3***	DOK 2
12	B, D	**4.NBT.3**	DOK 1
15	C	**4.NBT.4**	DOK 3
21	C	**4.NBT.1, 4.NBT.2***	DOK 2
22	A	**4.NBT.4**	DOK 1
25	B	**4.NBT.5**	DOK 1
29	B	**4.NBT.3**	DOK 2
35	C	**4.NBT.3**	DOK 1
39	D	**4.NBT.4**	DOK 1
41	Short answer response	**4.NBT.6**	DOK 3

	NF		
Item number	Correct answer	Standard(s)	DOK
1	B	**4.NF.7**	DOK 1
9	D	**4.NF.2**	DOK 1
13	C	**4.NF.6**	DOK 2
16	D	**4.NF.1**	DOK 2
24	C	**4.NF.4a, 4.NF.4b 4.NF.4c***	DOK 2
26	D	**4.NF.5**	DOK 2
28	C	**4.NF.4**	DOK 1
36	D	**4.NF.3**	DOK 2
40	A	**4.NF.3a, 4.NF.3b, 4.NF.3c, 4.NF.3d***	DOK 2
43	Short answer response	**4.NF.2**	DOK 3

Michigan State Test | Grade 4 | Answers

MD			
Item number	Correct answer	Standard(s)	DOK
5	A	**4.MD.2, 4.NBT.5**	DOK 2
11	A	**4.MD.4**	DOK 2
17	D	**4.MD.7**	DOK 1
20	C	**4.MD.6**	DOK 1
23	C	**4.MD.1**	DOK 1
30	C	**4.MD.3, 4.NBT.5**	DOK 1
32	D	**4.MD.2**	DOK 2
34	D	**4.MD.2**	DOK 2

G			
Item number	Correct answer	Standard(s)	DOK
6	B	**4.G.3**	DOK 1
19	A	**4.G.2**	DOK 2
31	D	**4.G.1**	DOK 1
37	B	**4.G.2**	DOK 1
38	A, D	**4.G.2**	DOK 2

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