THIRD SPACE LEARNING

4th Grade Massachusetts State Test

Massachusetts Practice Test
Grade 4

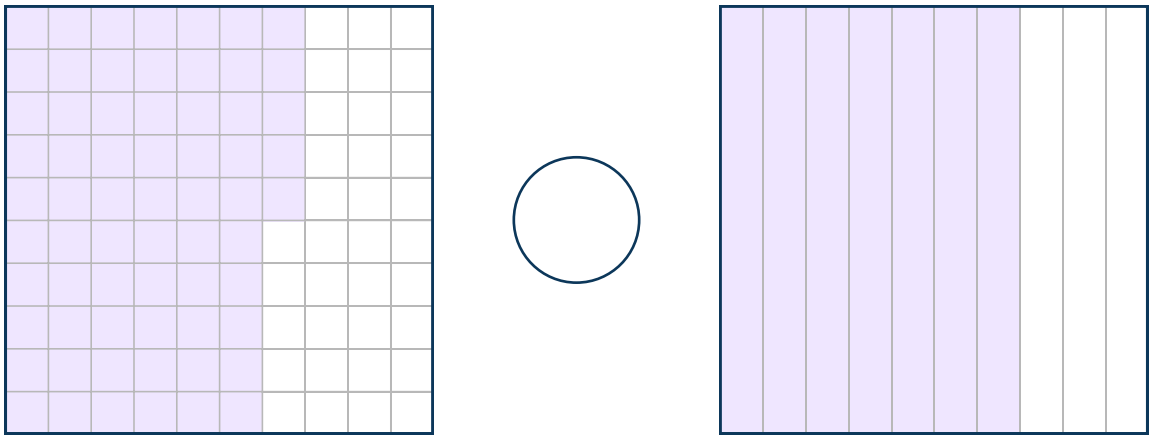
Grade 4

Questions

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

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

1 Which of the following statements correctly compares the two decimals below?



A. 0.65 > 0.7
B. 0.65 < 0.07
C. 0.65 < 0.7
D. 65 > 7

2 Emma is organizing a bookshelf. She has 5 times as many fiction books as non-fiction books. If there are 35 fiction books, how many non-fiction books does Emma have?

A. 7 non-fiction books
B. 30 non-fiction books
C. 40 non-fiction books
D. 175 non-fiction books

3 Using the following rectangular array, Calvin solves 38 x 16.

300	80
?	48

What missing number will complete Calvin's array?

A. 30
B. 60
C. 180
D. 300

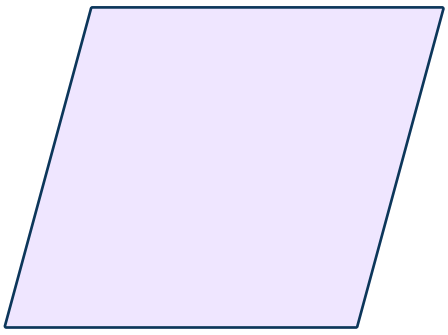
4 Which set of numbers are all multiples of 9?

A. 18, 36, 45, 60
B. 1, 3, 9
C. 1, 3, 9, 18, 27
D. 9, 18, 27, 36

5 Sophia is baking cookies for a fundraiser. She has 32 cups of flour. Each cup is equal to 8 ounces. How many ounces of flour does Sophia have?

A. 256 ounces
B. 4 ounces
C. 40 ounces
D. 128 ounces

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



A. 4
B. 2
C. 1
D. 0

7 A class is comparing the digits' values in the numbers 236,510 and 43,625.

Which statements are true? Select **all** that apply:

A. The digit 3 in 236,510 is ten times larger than in 43,625.
B. The digit 6 in 236,510 is one hundred times smaller than in 43,625.
C. The digit 5 in 43,625 is ten times larger than in 236,510.
D. The digit 2 in 236,510 is one thousand times larger than in 43,625.
E. The digit 5 in 236,510 is one hundred times smaller than in 43,625.

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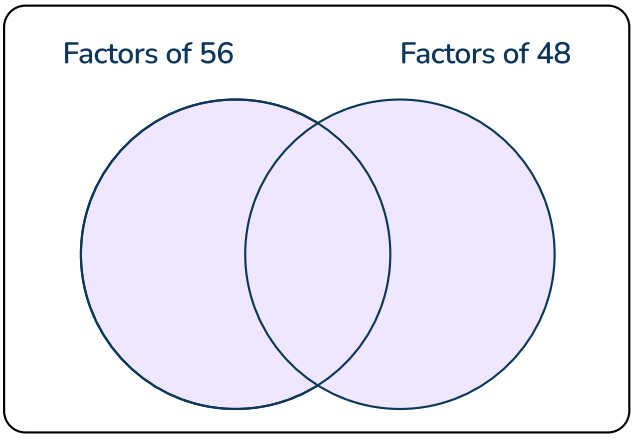
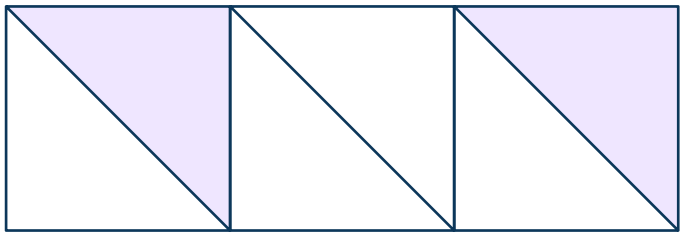
8 Examine the Venn diagram.



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

A. 2
B. 4
C. 8
D. 12

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



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

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

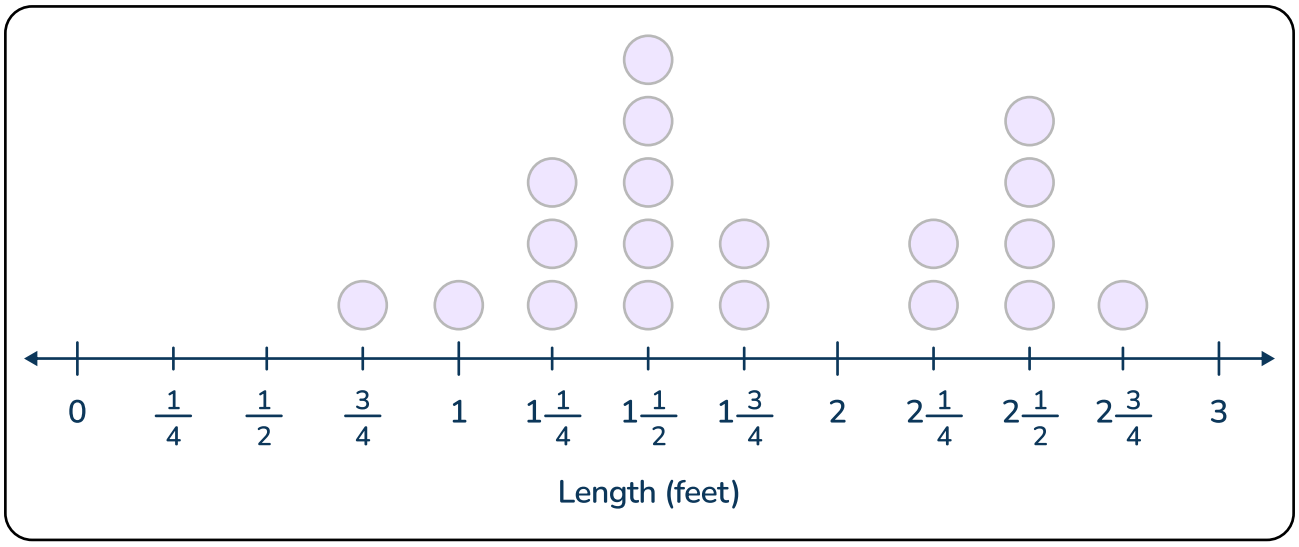
C. $\frac{2}{4} = \frac{1}{2}$

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

10 Grant is packaging homemade candles to sell. He places 8 candles in each box. If Grant has 523 candles, how many boxes will he need?

A. 65
B. 66
C. 67
D. 70

11 The line plot shows the lengths of Larissa's ribbons.



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 500 when rounded to the nearest hundred?
Select all correct answers.

A. 453

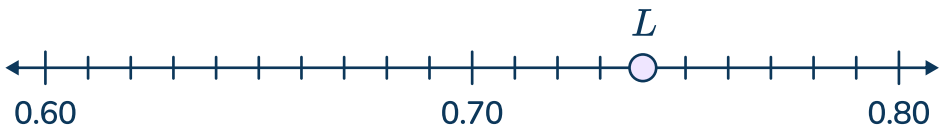
B. 551

C. 480

D. 546

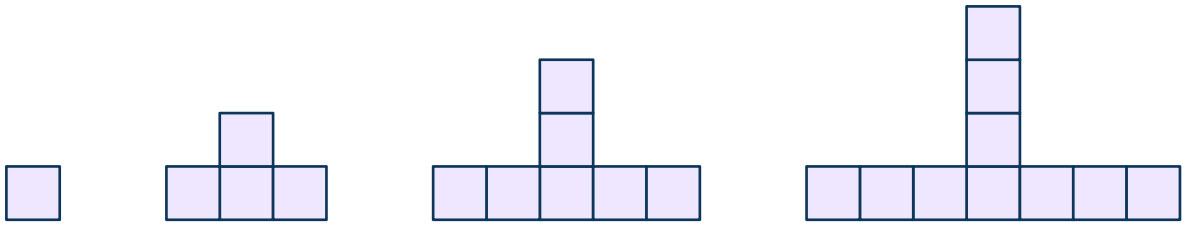
E. 568

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



A. 0.73
B. 0.37
C. 0.74
D. 0.704

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

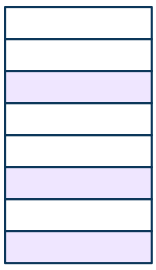
15 Joey subtracted with the standard algorithm.

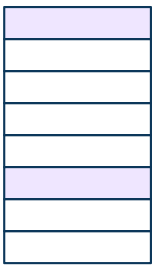
	6,	9	8	2
–	2,	7	3	5
	4,	2	5	3

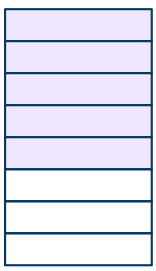
What mistake did Joey make?

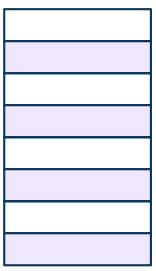
A. He did not make any mistakes.
B. He did not line up the place values correctly.
C. He did not exchange a ten to subtract the ones.
D. He did not regroup the hundreds to make 7 thousands on top.

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

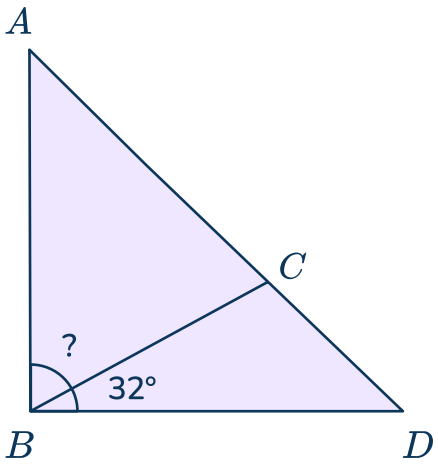
A. 

B. 

C. 

D. 

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



A. 58°
B. 28°
C. 90°
D. 13°

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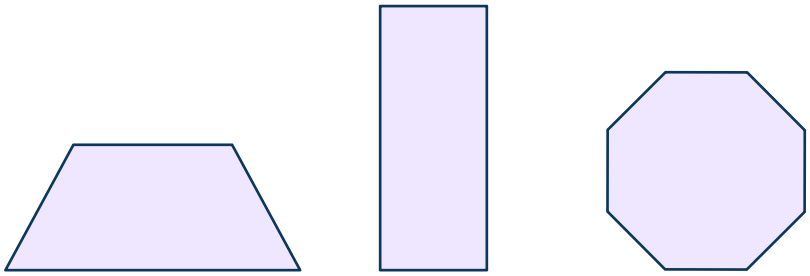
18 Starting number: 245
Rule: add 12 each time
Which statement is true about the numbers in the pattern?

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 Brinley 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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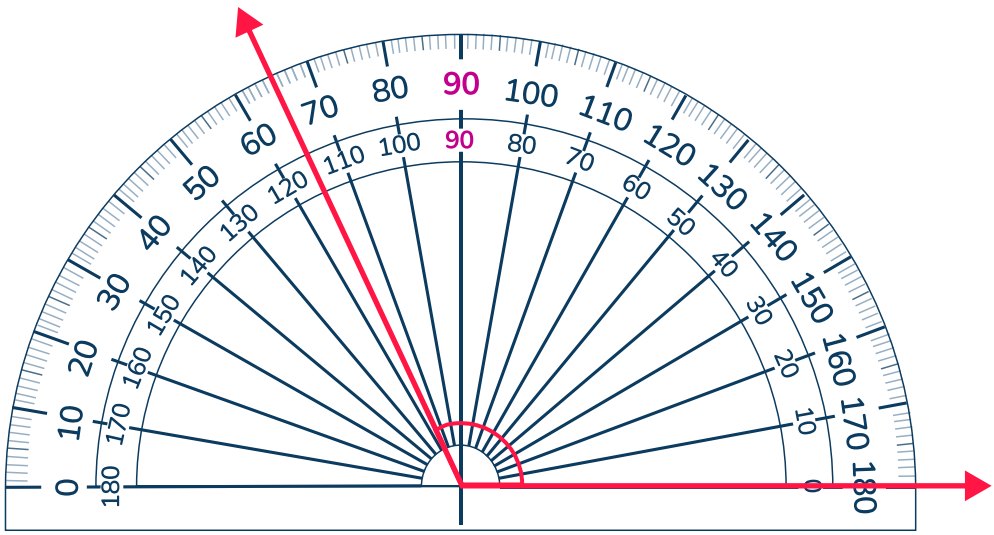
20 What is the measure of the angle?



A. 125°
B. 75°
C. 115°
D. 65°

21 Which number comparison is true?

A. Four thousand five hundred sixty-two = (4 × 1,000) + (5 × 100) + (6 × 10) + (2 × 1)
B. (2 × 1,000) + (3 × 100) + (5 × 10) < two thousand three hundred fifty
C. (4 × 10,000) + (7 × 1,000) + (5 × 100) < forty seven thousand five hundred
D. Fifty six thousand four hundred twenty five < (5 × 10,000) + (6 × 1,000) + (4 × 100) + (2 × 10)

22 Solve 64,581 - 29,384.

A. 35,297
B. 35,187
C. 35,197
D. 35,187

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
1	16
2	32
3	48

C.

pounds	ounces
8	1
16	2
24	3

D.

ounces	pounds
16	1
24	2
36	3

24 Carlos and Jenna each swam at a competition. Carlos swam $\frac{1}{2}$ mile. Jenna swam 4 times as far as Carlos. How many miles did Jenna swim?

A. 2 miles

B. 1 mile

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

D. $4\frac{1}{2}$ miles

25 What is the value of 2,452 × 6?

A. 14,712
B. 14,752
C. 14,512
D. 14,722

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

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

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

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

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

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

27 What are the next 3 numbers in the pattern?

7, 14, 24, 37, 53, ____, ____, ____

A. 72, 94, 119
B. 73, 96, 121
C. 74, 97, 122
D. 75, 100, 125

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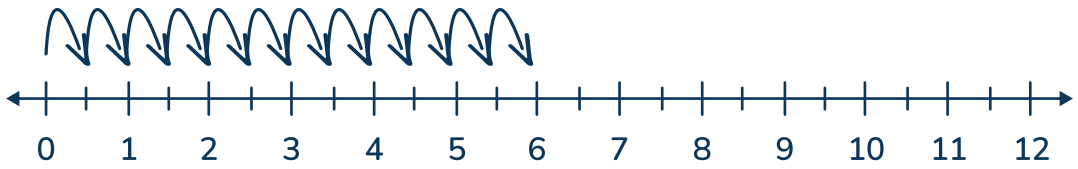
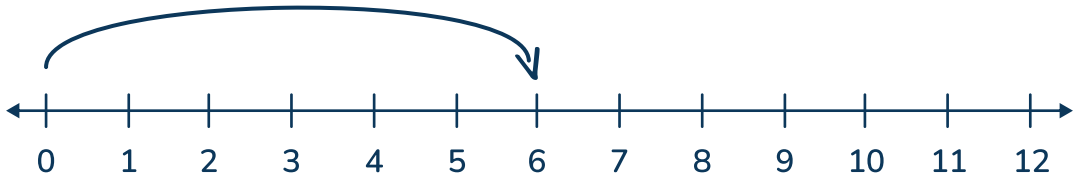
28 Choose the number line model that shows $6 \times \frac{1}{2}$.

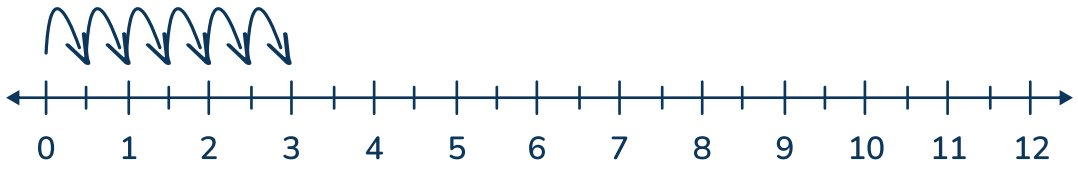
A.



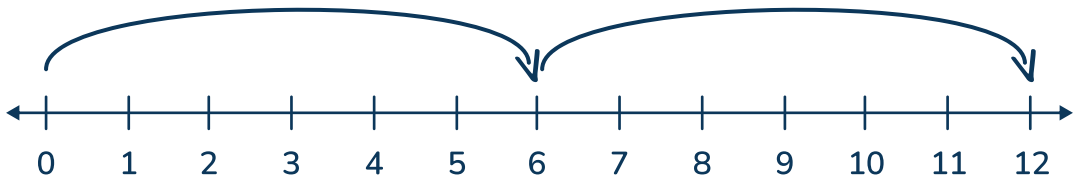
B.



C.



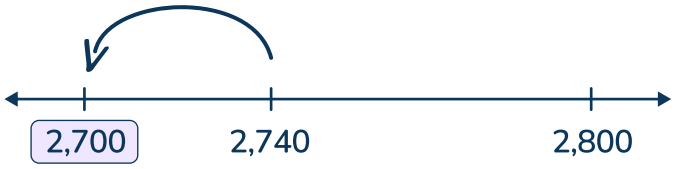
D.



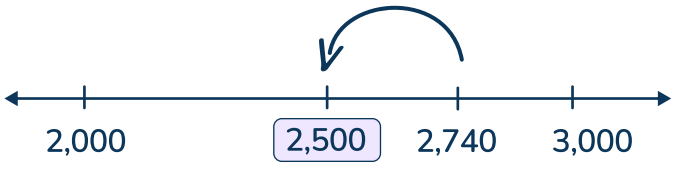
29 Which shows 2,740 rounded to the nearest hundred on a number line?

A.

B.

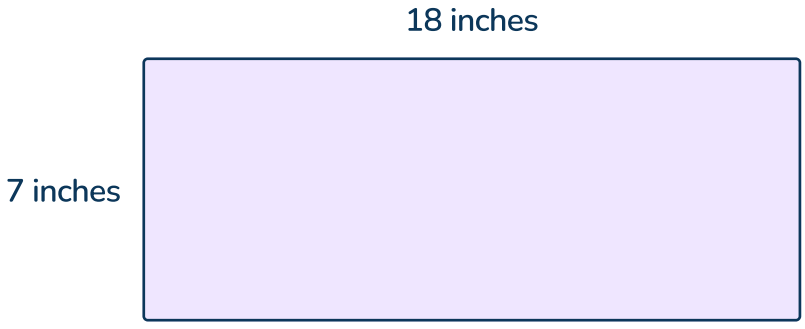


C.



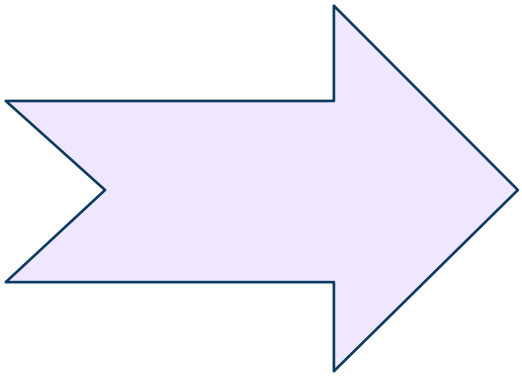
D.

30 What is the area of the rectangle?



A. 25 inches
B. 50 inches
C. 504 square inches
D. 126 square inches

31 How many line segments make up the polygon?



A. 10
B. 9
C. 8
D. 7

32 Bianca practiced the piano for 20 minutes. Then she played a board game for 45 minutes before she started her homework. If she started practicing the piano at 2:15 pm and finished her homework at 4:10 pm, how long did she spend doing her homework?

A. 1 hour
B. 50 minutes
C. 1 hour 5 minutes
D. 45 minutes

33 Which statements match an equation equal to 18? Select all that apply.

A. 3 times as many as 6
B. 10 times as many as 8
C. 8 times as many as 3
D. 2 times as many as 9

34 Olivia's garden is 24 feet by 15 feet. If each flower needs 9 square feet of space, how many flowers can Olivia plant in her garden?

A. 40 flowers
B. 360 flowers
C. 3,240 flowers
D. 400 flowers

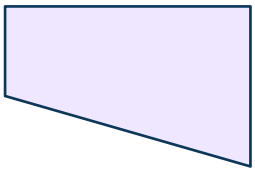
35 Round 78,487 to the nearest hundred.

A. 78,400
B. 78,500
C. 78,000
D. 78,480

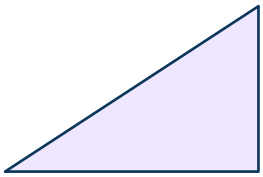
36 Lila has 8 cups of juice. She uses $2\frac{5}{10}$ cups to make a smoothie and $3\frac{7}{10}$ cups to make a juice mix. How much juice is left?

A. $6\frac{2}{10}$ cups
B. $1\frac{4}{10}$ cups
C. $1\frac{8}{10}$ cups
D. $2\frac{2}{10}$ cups

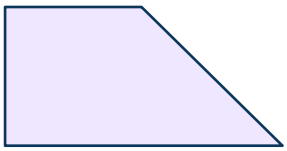
37 Which shape does NOT have a right angle?

A. 

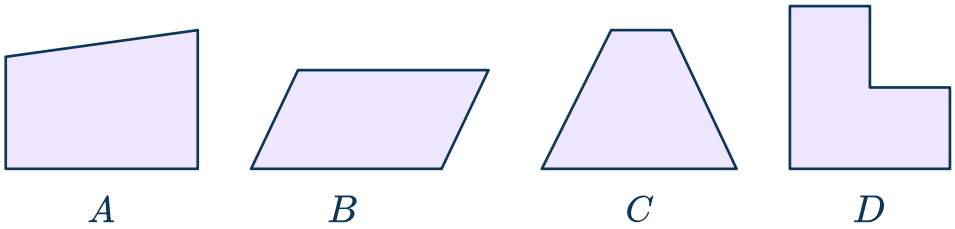
B. 

C. 

D. 

E. 

38 Which figures have both parallel and perpendicular sides? Select all correct answers.



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

39 Solve 134,752 + 265,839.

A. 300,601
B. 400,581
C. 400,591
D. 300,599

40 Sutton 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. $\frac{11}{15}$
E. $\frac{6}{8}$

Standard: 4.NBT.6
DOK 3
Short Answer Response - 5 points

41 Tristan used the following strategy to solve 1,764 ÷ 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 winter break, Alvin read 52 pages of a book. Oscar read 6 times as many pages of the same book. Oscar read 3 times as many pages as Nicole.

Write an expression to represent the number of pages Oscar read and an expression to represent the number of pages Nicole read. Then, solve each expression."

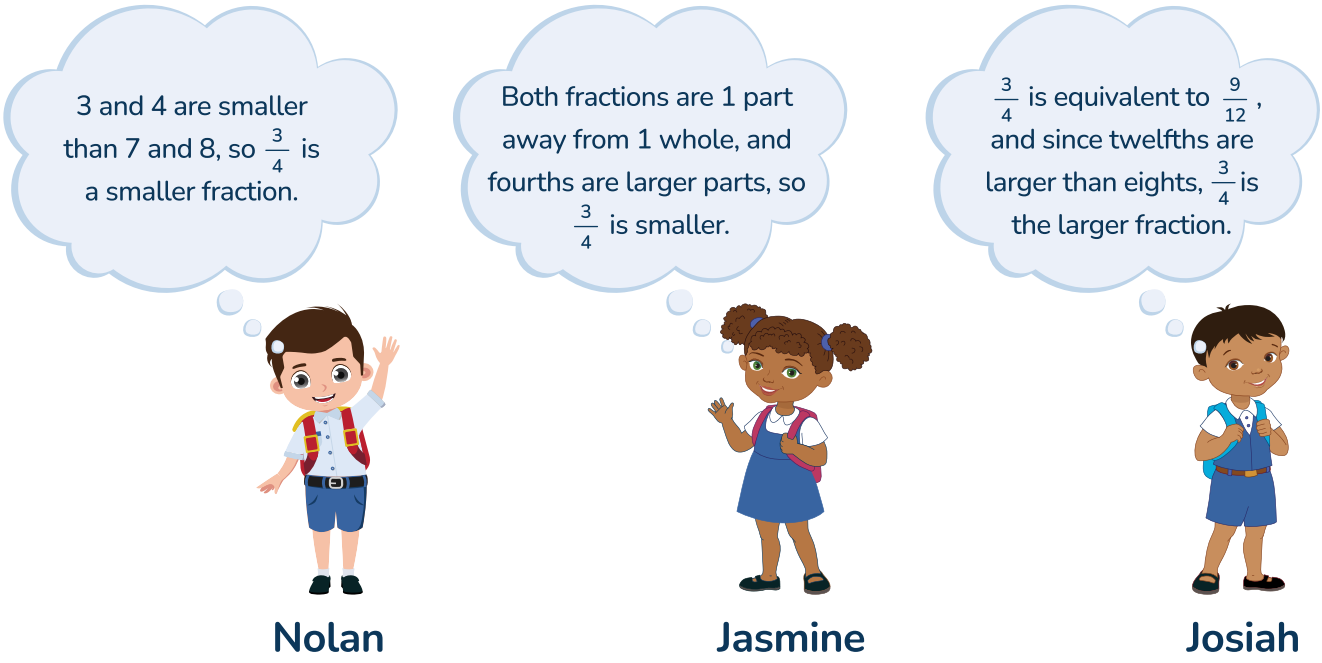
Oscar	Nicole

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.



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

Answer Key - Multiple Choice

Item number	Correct answer	Standard(s)	DOK
1	C	**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, D	**4.NBT.1**	DOK 1
8	C	**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	A, C, 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	A	**4.MD.7**	DOK 1
18	B	**4.OA.5**	DOK 2
19	A	**4.G.2**	DOK 2

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

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	Students will receive 0 points if they leave the response blank, or do not correctly explain the mistake **AND** do 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 Oscar and Nicole, and they need to find the correct value of each one. Oscar: 6 × 52 = 318 pages Nicole: 318 ÷ 3 = 106 pages
	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 $\frac{7}{8}$ the bigger fraction.
	2.5 points	Student explains most correct and incorrect parts (missing no more than 1 part) **OR** student makes 1 mistake.
	0 points	Students will receive 0 points if they leave the response blank, or do not identify most correct or incorrect parts **OR** make multiple mistakes.

ANSWERS SORTED BY CCSS STRAND

OA			
2	A	4.OA.1, **4.OA.2**	DOK 2
4	D	**4.OA.4**	DOK 1
8	C	**4.OA.4**	DOK 2
10	B	4.NBT.6, **4.OA.3***	DOK 2
14	B	**4.OA.5**	DOK 2
18	B	**4.OA.5**	DOK 2
27	A	**4.OA.5**	DOK 2
33	A, D	**4.OA.1**	DOK 1
42	Short answer response	**4.OA.2, 4.OA.3**	DOK 2

NBT			
3	C	**4.NBT.5**	DOK 2
7	A, D	**4.NBT.1**	DOK 1
12	A, C, D	**4.NBT.3**	DOK 1
15	C	**4.NBT.4**	DOK 3
21	A	4.NBT.1, **4.NBT.2**	DOK 2
22	C	**4.NBT.4**	DOK 1
25	A	**4.NBT.5**	DOK 1
29	B	**4.NBT.3**	DOK 2
35	B	**4.NBT.3**	DOK 1
39	C	**4.NBT.4**	DOK 1
41	Short answer response	**4.NBT.6**	DOK 3

NF			
1	C	**4.NF.7**	DOK 2
9	D	**4.NF.2**	DOK 1
13	C	**4.NF.6**	DOK 2
16	D	**4.NF.1**	DOK 2
24	A	**4.NF.4a, 4.NF.4b 4.NF.4c***	DOK 2
26	D	**4.NF.5**	DOK 2
28	C	**4.NF.4**	DOK 2
36	C	**4.NF.4**	DOK 1
40	A	4.NF.3a, 4.NF.3b, 4.NF.3c, **4.NF.3d***	DOK 2
43	Short answer response	**4.NF.2**	DOK 2

MD			
5	A	**4.MD.2,** 4.NBT.5	DOK 2
11	A	**4.MD.4**	DOK 2
17	A	**4.MD.7**	DOK 1
20	C	**4.MD.6**	DOK 1
23	D	**4.MD.1**	DOK 1
30	D	**4.MD.3,** 4.NBT.5	DOK 1
32	B	**4.MD.2**	DOK 2
34	A	**4.MD.2, 4.MD.3, 4.NBT.5, 4.NBT.6**	DOK 2

G			
6	B	**4.G.3**	DOK 1
19	A	**4.G.1**	DOK 2
31	C	**4.G.1**	DOK 1
37	B	**4.G.2**	DOK 1
38	A, D	**4.G.2**	DOK 2

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