Answer questions 1–40. Answer questions outlined in purple in your test book. Answer all other questions on the Answer Form.

1 Which pairs of equivalent measures could complete the table?

<table>
<thead>
<tr>
<th>Inches</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>5</td>
</tr>
<tr>
<td>108</td>
<td>9</td>
</tr>
<tr>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>1,200</td>
<td>100</td>
</tr>
</tbody>
</table>

A 200 inches and 10 feet  
B 216 inches and 18 feet  
C 240 inches and 22 feet  
D 300 inches and 25 feet
Look at this equation.

\[ \frac{4}{12} \times \frac{6}{12} = \_ + \_ \]

Which expressions could be used to complete the equation? Mark all that apply.

A. \(1 + 1 + 1 + \frac{6}{12}\)

B. \(1 + 1 + 1 + \frac{12}{12}\)

C. \(\frac{6}{12} + \frac{6}{12} + \frac{6}{12} + \frac{6}{12}\)

D. \(\frac{12}{12} + \frac{12}{12} + \frac{12}{12} + \frac{12}{12}\)

E. \(1 + 1 + 1 + \frac{6}{12} + \frac{6}{12}\)
Part A

What is the sum of $\frac{3}{10}$ and $\frac{5}{100}$?

A  $\frac{35}{100}$

B  $\frac{53}{100}$

C  $\frac{35}{10}$

D  $\frac{53}{10}$

Part B

What is the sum of $\frac{75}{100}$ and $\frac{8}{10}$?

A  $\frac{155}{200}$

B  $\frac{83}{110}$

C  $\frac{83}{100}$

D  $\frac{155}{100}$
**Part A**

Shade the second rectangle to model a fraction equivalent to the fraction modeled in the first rectangle.

![First rectangle with shaded parts](image)

![Second rectangle](image)

**Part B**

Complete the equation to represent the equivalent fractions shown in the models.

\[
\frac{3}{\square} = \frac{\square}{\square}
\]

**Part C**

Explain how you know the fractions are equivalent.

________________________________________________________________________

________________________________________________________________________
Look at this model.

Which product does the model represent?

A  $3 \times \frac{2}{4}$
B  $3 \times \frac{3}{4}$
C  $4 \times \frac{2}{4}$
D  $6 \times \frac{2}{4}$

Lars rode 5 miles on his bicycle. His father biked 5 times as many miles. Which equation shows the number of miles Lars’ father biked?

A  $5 \times 5 = 25$
B  $5 + 5 = 10$
C  $5 \div 5 = 1$
D  $5 - 5 = 0$
Brianne is choosing what to make for a bake sale. The amounts of sugar she needs for eight different recipes are given below.

\[
\frac{4}{8} \text{ cup}, \frac{3}{4} \text{ cup}, 1 \frac{1}{2} \text{ cups}, \frac{1}{2} \text{ cup}, \frac{3}{4} \text{ cup}, \frac{6}{8} \text{ cup}, 1 \text{ cup}, 1 \frac{1}{4} \text{ cups}
\]

**Part A**

Make a line plot of the data.

**Part B**

Three of the recipes use the same amount of sugar. What is the total amount of sugar Brianne will need if she makes these three recipes?

*Show your work.*

**Answer** ________________ cup(s)
It took Jerry $3 \frac{4}{5}$ hours to get to his grandmother’s house. First he walked for $\frac{2}{5}$ hour to the train station, then he rode on a train for $1 \frac{4}{5}$ hours, and then took a bus right to her front door.

**Part A**

How much time did Jerry spend riding on the bus?

*Show your work.*

**Answer** ________________ hours

**Part B**

Jerry’s trip home took $\frac{2}{5}$ hour longer. How long did his trip home take?

*Show your work.*

**Answer** ________________ hours
This model shows one way to find the quotient of $7,848 \div 4$.

Which equation shows the final step in finding the quotient?

A $1,900 + 60 + 2 + 4 + 8 = 1,974$

B $1,900 + 60 + 2 + 4 = 1,966$

C $1,900 + 60 + 2 + 8 = 1,970$

D $1,900 + 60 + 2 = 1,962$
Jin, Marco, and Myra each cut a length of wire for an electronics project.

- Jin’s wire was 25 hundredths of a meter long.
- Marco’s wire was 3 tenths of a meter long.
- Myra’s wire was 0.2 meter long.

Which statements are true? Mark all that apply.

A  Marco’s wire is shorter than Jin’s wire.
B  Marco’s wire is the longest.
C  Jin’s wire is longer than Myra’s wire.
D  Myra’s wire is the longest.

Solve.

\[ 9,782 - 3,891 + 2,715 = \phantom{0} \]

Which shows the answer in expanded form?

A  \( 8,000 + 600 + 6 \)
B  \( 5,000 + 800 + 90 + 1 \)
C  \( 6,000 + 800 + 20 + 6 \)
D  \( 6,000 + 900 + 90 + 1 \)
Maria has a stack of 60 playing cards that she wants to place into equal groups.

**Part A**

Use numbers below to show four different ways Maria could group the cards.

2, 3, 4, 5, 6, 7, 10, 12, 15, 18, 20

**Answer**

_____ groups of _____ cards
_____ groups of _____ cards
_____ groups of _____ cards
_____ groups of _____ cards

**Part B**

Maria removes some cards from the stack. Now there are only three different ways to put the rest of the cards into equal groups. What is the least number of cards Maria could have removed? Explain how you know.

**Answer**

__________________________

__________________________

__________________________

**Part C**

Maria adds 3 cards to her stack of 60. She says now there are only two ways to arrange the cards into equal groups. Her reason is that 63 is an odd number. Is Maria’s reasoning correct? Explain why or why not.

__________________________

__________________________

__________________________

__________________________
13 Which equations are correct? Mark all that apply.

A $2 \times \frac{1}{3} = \frac{2}{3}$

B $5 \times \frac{1}{8} = 5 \frac{1}{8}$

C $\frac{1}{6} \times 4 = \frac{4}{6}$

D $\frac{1}{4} \times 6 = \frac{4}{3}$

14 Aidan looked at the measures of the angles on the traffic signs below and correctly classified the signs.

Part A

Which traffic sign did Aidan place in a group that has acute and obtuse angles?

A Yield

B Stop

C National Forest

D Be Prepared to Stop

Part B

How many signs did Aidan place in a group that appears to have only right angles?

A 3

B 4

C 5

D 6
15 While on vacation, Samantha bought 6 postcards to send to her friends. This was twice as many postcards as Nathan bought. Which equation shows the number of postcards, p, that Nathan bought?

A \[ 6 \div 2 = p; p = 3 \]
B \[ 6 - 2 = p; p = 4 \]
C \[ 6 + 2 = p; p = 8 \]
D \[ 6 \times 2 = p; p = 12 \]

16 In their last basketball game, Reilly’s team scored 63 points. This was seven times the number of points that Reilly scored.

Part A
Write and solve an equation to find the number of points Reilly scored.

Show your work.

Answer ________________

Part B
How many points did the rest of the team score?

Show your work.

Answer ________________
For their homework, Jack and Malik must use <, >, or = to compare the following fractions:

$$\frac{2}{3} \bigcirc \frac{1}{8}$$

**Part A**

Jack says the fractions need to be rewritten before they can be compared. Malik says that he can use the fraction $\frac{1}{2}$ to compare them, without rewriting either one. Tell who is right and explain why.

**Part B**

Write the correct symbol in the circle.
One weekend there were 4,725 visitors to a state park. The next weekend there were 2,916 visitors. Park rangers want to estimate the total number of visitors.

**Part A**

What is the total if the numbers first are rounded to the nearest ten?

- **A** 7,700
- **B** 7,650
- **C** 7,640
- **D** 7,630

**Part B**

What is the total if the numbers first are rounded to the nearest hundred?

- **A** 7,600
- **B** 7,000
- **C** 6,700
- **D** 6,600
Hiriwa uses \( \frac{2}{3} \) cup of pineapple for each smoothie she makes.

**Part A**

How many cups of pineapple does Hiriwa use to make 2 smoothies?

A 1 \( \frac{1}{3} \) cups
B 1 \( \frac{2}{3} \) cups
C 2 \( \frac{1}{3} \) cups
D 2 \( \frac{2}{3} \) cups

**Part B**

How many cups of pineapple does Hiriwa use to make 6 smoothies?

A 6 \( \frac{2}{3} \) cups
B 2 \( \frac{2}{3} \) cups
C \( \frac{12}{3} \) cups
D \( \frac{12}{18} \) cups

*Go On*
20 Mrs. Martin wants to place a ribbon around the outer edge of a rectangular mirror. The area of the mirror is 324 square inches. The width of the mirror is 12 inches. How many inches of ribbon does Mrs. Martin need?

*Show your work.*

Answer _________________ inches

21 Elaine and Rocco shared a bag of popcorn. Rocco ate \( \frac{5}{8} \) of the bag of popcorn and Elaine ate \( 1 \frac{3}{8} \) cups of popcorn. How much popcorn did Elaine and Rocco eat in all?

A 1 cup

B \( 1 \frac{5}{8} \) cups

C 2 cups

D The fractions cannot be combined because they do not represent the same whole.
22 The clock below shows the time that Candace leaves for a bicycle ride. She rides for \( \frac{1}{2} \) hour.

![Clock Image]

Through how many degrees does the minute hand turn while Candace is on her ride?

A 90°
B 180°
C 270°
D 360°

23 Michaela wants to buy a shirt. She has $8 and she plans to save $3 each week until she has exactly enough money to buy the shirt.

Which could be the cost of the shirt? Mark all that apply.

A $18
B $20
C $24
D $32
Ian read \( \frac{3}{4} \) of a book. Jessica read \( \frac{4}{5} \) of the same book.

**Part A**

Ian uses the models below to find a common denominator. Draw lines in the models to find the common denominator. Then use the common denominator to compare the fractions using a symbol.

![Models](image)

**Part B**

Jessica compares the same fractions by finding a common numerator. Explain how she can do that. Then complete the comparison using the common numerator.

![Comparison](image)

**Part C**

Who read more of the book? Explain how you know.

*Answer* ________________
**Part A**

Write the first five numbers in the pattern that follows the rule “start at 3 and add 10.”

______  ______  ______  ______  ______

**Part B**

What is another pattern you see in the digits of this set of numbers? Explain why this pattern occurs.

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
26 Noah wants to find the sum \( 2 \frac{3}{8} + 3 \frac{7}{8} \). Which is **not** a method Noah could use to find the sum?

A. \( 2 \frac{3}{8} + 3 \frac{7}{8} = 2 + 3 + \frac{3}{8} + \frac{7}{8} = 5 + \frac{10}{8} \)

B. \( 2 \frac{3}{8} + 3 \frac{7}{8} = \frac{23}{8} + \frac{37}{8} = \frac{60}{8} \)

C. \( 2 \frac{3}{8} + 3 \frac{7}{8} = 2 \frac{2}{8} + \frac{1}{8} + 3 \frac{7}{8} = 2 \frac{2}{8} + 4 \)

D. \( 2 \frac{3}{8} + 3 \frac{7}{8} = \frac{16}{8} + \frac{3}{8} + \frac{24}{8} + \frac{7}{8} = \frac{50}{8} \)

27 The fraction \( \frac{67}{100} \) is shown on the model below.

Which decimal does the grid model?

A. 0.06

B. 0.60

C. 0.67

D. 6.7
Part A

Morgan needs a board that is exactly \( \frac{80}{100} \) meter long. Javier hands him a board that measures 0.8 meter. Can Morgan use that board? Explain why or why not.

Part B

Morgan and Javier separately measure the lengths in meters of some other boards.

Draw lines to match equivalent numbers.

<table>
<thead>
<tr>
<th>Morgan</th>
<th>Javier</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{7}{10} )</td>
<td>0.17</td>
</tr>
<tr>
<td>( \frac{24}{100} )</td>
<td>0.2</td>
</tr>
<tr>
<td>( \frac{2}{10} )</td>
<td>0.3</td>
</tr>
<tr>
<td>( \frac{17}{100} )</td>
<td>0.7</td>
</tr>
<tr>
<td>( \frac{3}{10} )</td>
<td>0.24</td>
</tr>
</tbody>
</table>
What is the difference?

**Part A**

\[8,105 - 3,946\]

A 4,159  
B 4,269  
C 5,259  
D 5,841

**Part B**

\[13,904 - 7,662\]

A 6,242  
B 6,252  
C 7,242  
D 7,252

Medfield’s population can be written as 100,000 + 7,000 + 300 + 80 + 9.

Which numbers below are greater than Medfield’s population?  
Mark all that apply.

A one hundred seven thousand, eight hundred  
B one hundred seven thousand, ninety-four  
C one hundred ten thousand, two hundred twelve  
D one hundred six thousand, seven hundred eighty
What is the measure of $\angle DOA$?

A  $60^\circ$
B  $80^\circ$
C  $100^\circ$
D  $120^\circ$
The rectangular piece of art paper shown here has a perimeter of 36 inches.

Paige is covering the paper with small stickers. Four stickers will exactly cover one square inch of the paper.

If stickers are sold in packs of 100, how many packs of stickers will Paige need? How many stickers will Paige have left over? Explain your answer using numbers, symbols, and words.

**Answer**

________________________

________________________

________________________

________________________
Caleb wants to draw a line on each figure that will intersect it at only 1 point, even if the rays and lines extend forever. On which figure is this impossible?
Which numbers are prime? Mark all that apply.

A 5
B 11
C 27
D 31
On a school trip to the city museum, the students were asked to record the lengths of wingspans of different species of butterflies. The line plot shows the wingspans of five species, in inches, that Pam recorded in her notebook.

Part A

How much longer is the longest wingspan than the shortest wingspan that Pam recorded?

A \( \frac{4}{4} \) inch
B \( \frac{3}{4} \) inch
C \( \frac{2}{4} \) inch
D \( \frac{1}{4} \) inch

Part B

What is the total length of the wingspans of the two butterflies with the shortest wingspans?

A \( \frac{4}{4} \) inch
B \( \frac{3}{4} \) inch
C \( \frac{2}{4} \) inch
D \( \frac{1}{4} \) inch
Sierra makes frozen juice bars. She uses \(\frac{3}{8}\) cup of orange juice for each bar.

**Part A**

How many cups of orange juice does she need to make 6 bars? Draw a model to show the answer.

**Answer** ______________ cups

**Part B**

Sierra has a bottle with 2 cups of orange juice left. Is this enough to make 6 frozen juice bars? Explain.

**Answer** ______________

________________________________________________________________________

________________________________________________________________________
The shaded part of this hexagon represents a fraction of the whole.

Which hexagons are shaded to represent the same fraction? Mark all that apply.

A

B

C

D

Go On
Georgia earns $3,567 each month. She spends $2,895 each month and saves the rest of her money. Which equation shows about how much money Georgia saves each month, rounded to the nearest hundred dollars?

A $4,000 – $3,000 = $1,000
B $3,570 – $2,900 = $670
C $3,600 – $2,900 = $700
D $3,500 – $2,900 = $800

39

Part A

What is the sum of 86,456 and 34,731?

A 110,187
B 111,187
C 120,187
D 121,187

Part B

What is the difference of 57,213 and 48,670?

A 8,443
B 8,543
C 10,543
D 10,643
Richard and Catelyn each wrote an essay about their state’s capital. Each rounded the capital’s population to give an estimate in their essay. Richard said that the population is about 370,000. Catelyn reported the population as about 400,000.

**Part A**

Explain how Richard and Caitlyn both could be correct about the capital’s population.

________________________________________________________________________

________________________________________________________________________

**Part B**

Suppose that Richard and Caitlyn are both correct. What is the *least number* the actual population could be? Explain how you know.

**Answer**

________________________________________________________________________

________________________________________________________________________

**Part C**

Suppose that Richard and Caitlyn are both correct. What is the *greatest* number the actual population could be? Explain how you know.

**Answer**

________________________________________________________________________

________________________________________________________________________

STOP
Assessment Practice, Mathematics, Level 4
Answer Form

Name_________________________ Teacher__________________________ Grade__________________________
School________________________ City_________________________ State__________________________

Assessment 1

1. A B C D
2. A B C D E
3A. A B C D
3B. A B C D
5. A B C D
6. A B C D
7. See page 6.
8. See page 7.
9. A B C D
10. A B C D
11. A B C D
12. See page 10.
13. A B C D
14A. A B C D
14B. A B C D
15. A B C D
16. See page 12.
17. See page 13.
18A. A B C D
18B. A B C D
19A. A B C D
19B. A B C D
20. See page 16.
21. A B C D
22. A B C D
23. A B C D
24. See page 18.
25. See page 19.
26. A B C D
27. A B C D
29A. A B C D
29B. A B C D
30. A B C D
31. A B C D
32. See page 24.
33. A B C D
34. A B C D
35A. A B C D
35B. A B C D
36. See page 28.
37. A B C D
38. A B C D
39A. A B C D
39B. A B C D
40. See page 31.

TEACHER USE ONLY

4. 0 1 2 3
7. 0 1 2 3
8. 0 1 2 3
12. 0 1 2 3
16. 0 1 2 3
17. 0 1 2 3
20. 0 1 2 3
24. 0 1 2 3 4
25. 0 1 2 3
28. 0 1 2 3
32. 0 1 2 3 4
36. 0 1 2 3 4 5 6
40. 0 1 2 3