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Basic Facts Test

**Multiple Choice**

1. The result of multiplying numbers is called a _____.
   a. factor  
   b. multiple  
   c. product  
   d. sum

2. What is the product of 2 and 8?
   a. 6  
   b. 10  
   c. 16  
   d. 18

3. What is the product of 5 and 4?
   a. 14  
   b. 20  
   c. 24  
   d. 30

   a. 12  
   b. 24  
   c. 30  
   d. 36

5. Which of the following shows the same value as $7 \times 5$?
   a. $7 \times 7 \times 7 \times 7 \times 7$  
   b. $5 \times 5 \times 5 \times 5 \times 5 \times 5$  
   c. $7 + 7 + 7 + 7 + 7$  
   d. $5 + 5 + 5 + 5 + 5$

6. Harold has 4 packages of doughnuts. Each package has 3 doughnuts. How many doughnuts does he have?
   a. 4  
   b. 7  
   c. 8  
   d. 12

**Show Your Work**

7. What is the product of 10 and 4?

8. Rewrite the addition expression as a multiplication expression.
   
   $8 + 8 + 8 + 8$

9. Sharon has to stand up all day on her job. She took six breaks that each lasted 5 minutes to sit down and rest. How much time did Sharon spend sitting down?

**Explain Your Answer**

10. Explain how you can use the fact $3 \times 7 = 21$ to find the product of 3 and 8.
### Multiple Choice

1. Multiply $4 \times 100$.
   - a. 0.4  
   - b. 40  
   - c. 400  
   - d. 4,000

2. What is the product of 20 and 10?
   - a. 2  
   - b. 200  
   - c. 400  
   - d. 2,000

3. What is the product of 4 and 30?
   - a. 12  
   - b. 60  
   - c. 80  
   - d. 120

4. Multiply $80 \times 200$.
   - a. 800  
   - b. 1,600  
   - c. 4,000  
   - d. 16,000

5. There are 30 cartons of golf balls. Each carton has 3 golf balls. How many golf balls are there in all?
   - a. 9  
   - b. 33  
   - c. 90  
   - d. 180

6. Keisha went to the corner market 10 times last month. Each time she went to the market, she spent $6 on a sandwich and drink. How much did Keisha spend at the market?
   - a. $30  
   - b. $60  
   - c. $80  
   - d. $600

### Show Your Work

7. Multiply $60 \times 50$.

8. Every time Colton visits the gym, he rides 20 miles on the stationary bike. Since Colton joined the gym, he has visited 40 times. How many miles has he ridden on the stationary bike?

### Explain Your Answer

9. How can you tell that a number is a power of ten?
Multiple Choice

1. Which equation illustrates the Associative Property?
   a. \((6 \times 3) \times 4 = 6 \times (3 \times 4)\)
   b. \(23 \times 0 = 0\)
   c. \(5 \times 18 = 18 \times 5\)
   d. \(1 \times 81 = 81\)

2. Which equation illustrates the Property of One?
   a. \((6 \times 3) \times 4 = 6 \times (3 \times 4)\)
   b. \(23 \times 0 = 0\)
   c. \(5 \times 18 = 18 \times 5\)
   d. \(1 \times 81 = 81\)

3. What property allows you to change the order of factors?
   a. The Associative Property
   b. The Commutative Property
   c. The Property of One
   d. The Zero Product Property

4. What property is illustrated by the equation \(a \times b = b \times a\)?
   a. The Associative Property
   b. The Commutative Property
   c. The Property of One
   d. The Zero Product Property

Show Your Work

5. Show three equations that illustrate the Zero Product Property.

Explain Your Answer

6. Why is the Property of One also called the Identity Property of Multiplication?
The Distributive Property Test

Multiple Choice

1. Which equation illustrates the Distributive Property?
   a. \(9(2 + 5) = (9 \times 2) + (9 \times 5)\)
   b. \((4 \times 3) \times 12 = (3 \times 4) \times 12\)
   c. \((4 \times 3) \times 12 = 4 \times (3 \times 12)\)
   d. \(1 \times 81 = 81\)

2. Which expression has the same value as \(8 \times 19\)?
   a. \(10 \times 17\)
   b. \(8(10 + 7)\)
   c. \(8(10 + 9)\)
   d. \(19 \times 8 + 1\)

3. What is the value of the expression \(9(6 + 8)\)?
   a. 18    b. 126    c. 144    d. 180

4. Which expression has a value of 135?
   a. \(9(21 - 5)\)
   b. \(15(8 + 3)\)
   c. \((7 \times 12) + (7 \times 10)\)
   d. \((9 \times 20) - (9 \times 5)\)

Show Your Work

5. Use the distributive property to rewrite and evaluate the expression \((5 \times 13) - (5 \times 6)\).

Explain Your Answer

6. The student council sells a packet of two handmade hair bands for a fundraiser. Kim made 14 packets of hair bands and Yolanda made 26 packets. How many hair bands did the girls make in all? Explain how the distributive property can be used to solve the problem.
Use the Facts Test

Multiple Choice

1. What is the product of 34 and 2?
   a. 58  b. 68  c. 72  d. 98

2. What is the product of 3 and 23?
   a. 46  b. 66  c. 69  d. 96

3. Multiply 223 \times 2.
   a. 246  b. 426  c. 433  d. 446

4. Multiply 2 \times 341.
   a. 682  b. 784  c. 862  d. 982

5. A bushel of apples has an average of 124 apples. About how many apples are there in 2 bushels?
   a. 124  b. 238  c. 248  d. 368

6. Alexander sells 1,101 tickets for each of 6 showings of a play. How many tickets did he sell in all?
   a. 1,606  b. 1,166  c. 6,606  d. 6,660

7. Multiply 20,121 \times 4.
   a. 8,484  b. 80,484  c. 84,084  d. 88,484

Show Your Work

8. Use partial products to solve 413 \times 2.

9. Celine earned $3,211 each month for 3 months. How much did she earn in all?

Explain Your Answer

10. Explain how the expanded form of one of the factors can be used to multiply with partial products.
Regrouping Test

Multiple Choice
1. What is the product of 18 and 6?
   a. 24    b. 88    c. 108    d. 204

2. What is the product of 57 and 3?
   a. 151    b. 171    c. 177    d. 1,521

3. Multiply $520 \times 7$.
   a. 364    b. 3,514    c. 3,540    d. 3,640

4. Multiply $4 \times 352$.
   a. 1,408    b. 1,228    c. 1,208    d. 808

5. Jean can type an average of 37 words a minute. About how many words can she type in 5 minutes?
   a. 155    b. 185    c. 215    d. 355

6. Over the last 8 hockey games, Darren’s team has had 24 three-minute penalties. How many total minutes is this?
   a. 24    b. 62    c. 72    d. 192

7. In exactly 13 weeks, the circus is coming to town. How many days until the circus is in town?
   a. 65    b. 71    c. 74    d. 91

Show Your Work
8. Multiply $4 \times 45$.

9. An airplane sits 8 passengers across and has 64 rows. How many passengers can be seated in the airplane?

Explain Your Answer
10. How is regrouping in multiplication similar to regrouping in addition? How is it different?

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Multiple Choice

1. What is the product of 21 and 21?
   a. 411    b. 431    c. 441    d. 442

2. What is the product of 53 and 16?
   a. 828    b. 848    c. 868    d. 8,576

3. Multiply 60 \times 72.
   a. 432    b. 4,220    c. 4,300    d. 4,320

4. Which expression has a value of 3,008?
   a. \( 64 \times 47 \)    b. \( 53 \times 76 \)
   c. \( 62 \times 44 \)    d. \( 67 \times 44 \)

5. Each classroom in Willett Hall will hold 34 students. There are 4 floors with 6 classrooms on each floor. How many students can be in class at Willett Hall?
   a. 816    b. 612    c. 204    d. 136

6. There are 47 boxes of pencils on a shelf. There are 12 pencils in each box. How many pencils are there in all?
   a. 546    b. 444    c. 564    d. 91

Show Your Work

7. \( 33 \times 85 = \) ____.

8. There are 60 seconds in one minute. There are 60 minutes in one hour. How many seconds are in one hour?

Explain Your Answer

9. Cheryl lives 24 times as far as her cousin Theo from their grandmother. Theo lives 19 miles from their grandmother. Explain how to find the distance Cheryl lives from their grandmother.
**Multiplying Larger Numbers Test**

**Multiple Choice**

1. Multiply $389 \times 56$.
   - a. $4,279$
   - b. $21,784$
   - c. $11,784$
   - d. $20,684$

2. $301 \times 260 = _____$
   - a. $6,260$
   - b. $60,260$
   - c. $72,260$
   - d. $78,260$

3. Multiply $971 \times 712$.
   - a. $690,312$
   - b. $680,812$
   - c. $691,352$
   - d. $691,452$

4. A room is 212 feet long and 58 feet wide. The area of the floor is ____ square feet.
   - a. 12,756
   - b. 12,296
   - c. 11,296
   - d. 2,756

5. A concert hall sells 2,160 tickets at $239 each. How much was the total amount of ticket sales?
   - a. $51,624$
   - b. $416,240$
   - c. $495,240$
   - d. $516,240

**Show Your Work**

6. Each day a car manufacturer makes 124 models of a certain car. How many cars does the manufacturer make in 25 days?

**Explain Your Answer**

7. Explain how to use expanded notation to multiply $307 \times 41$. 
Multiple Choice
1. Multiply 0.04 × 8.
   a. 0.032  b. 0.32  c. 3.2  d. 32

2. What is the product of 5 and 0.5?
   a. 25  b. 2.5  c. 0.25  d. 0.025

3. Multiply 0.02 × 0.4.
   a. 0.008  b. 0.08  c. 0.8  d. 8

4. 1.04 × 0.5 = ___
   a. 5.2  b. 5.02  c. 0.52  d. 0.502

5. Jeff is buying candy bars for $0.75 each. How much will he spend if he buys 6 candy bars?
   a. $1.50  b. $3.00  c. $4.50  d. $7.50

6. A club earns $0.10 for each pencil or bookmark they sell. They sold 57 pencils and 82 bookmarks. How much did they earn?
   a. $5.70  b. $13.90
c. $82.00  d. $139.00

Show Your Work
7. 0.9 × 0.9 = ___

8. Multiply 0.021 × 1000.

9. A factory makes 6.2 gallons of juice per minute. How much juice do they make each hour?

Explain Your Answer
10. What are the steps to multiplying decimal numbers?
Multiplying Fractions Test

Multiple Choice

1. Multiply $\frac{2}{3}$ by $\frac{1}{6}$.
   - a. $\frac{1}{2}$  
   - b. $\frac{2}{9}$  
   - c. $\frac{1}{3}$  
   - d. $\frac{1}{9}$

2. $\frac{1}{4} \times \frac{1}{4}$
   - a. $\frac{1}{2}$  
   - b. $\frac{1}{4}$  
   - c. $\frac{1}{8}$  
   - d. $\frac{1}{16}$

3. Multiply 18 by $\frac{1}{2}$.
   - a. 36  
   - b. 9  
   - c. 6  
   - d. 3

4. Kurt runs $3 \frac{1}{4}$ miles every morning. How many miles does he run in 5 days?
   - a. $15 \frac{1}{4}$  
   - b. $15 \frac{3}{4}$  
   - c. $16 \frac{1}{4}$  
   - d. $18 \frac{1}{2}$

5. Multiply $4 \frac{1}{2}$ by $5 \frac{1}{3}$.
   - a. $12 \frac{5}{6}$  
   - b. 24  
   - c. $26 \frac{1}{6}$  
   - d. 32

6. $\frac{3}{4}$ of 16 is _____.
   - a. 6  
   - b. $9 \frac{1}{2}$  
   - c. 12  
   - d. $14 \frac{1}{4}$

Show Your Work

7. Multiply $\frac{3}{5}$ and $\frac{1}{6}$.

8. Adria types an average of 30 words per minute for $5 \frac{1}{3}$ minutes. How many words did she type in all?

9. Garrett drank $\frac{3}{4}$ of a pitcher of sweet tea. There were $2 \frac{1}{2}$ cups of sugar in the pitcher. How much sugar did Garrett consume?

Explain Your Answer

10. What benefit is there to simplifying before you multiply fractions?
Estimation: Multiplication Test

Multiple Choice

1. Which estimate for $162 \times 36$ used rounding to the nearest tens place?
   a. 4,800   b. 6,000   c. 6,400   d. 7,200

2. Estimate using the nearest whole number.
   $6.5 \times 1.8$
   a. 6   b. 7   c. 12   d. 14

3. Estimate using the nearest whole number.
   $7\frac{1}{4} \times 9\frac{5}{7}$
   a. 63   b. 70   c. 72   d. 80

Show Your Work

4. Heidi has 6 boards to cover with canvas. Each board uses $16\frac{7}{8}$ square feet of canvas. About how much canvas does Heidi need?

5. Estimate $537 \times 764$. Check your answer against the exact answer.

6. Estimate $9\frac{1}{4} \times 3\frac{5}{6}$. Check your answer against the exact answer.

Explain Your Answer

7. Explain why rounding to the tens place will give a closer estimate than rounding to the hundreds place when estimating multiplication.
Division Test

Multiple Choice
1. A dividend is _______.
   a. the number that being divided
   b. the number being divided by
   c. the answer to a division problem
   d. none of the above

2. How many groups of 5 objects can you make from 35 objects?
   a. 4       b. 5       c. 6       d. 7

3. A box of 12 pencils is sorted into groups of 4 pencils each. How many groups are formed?
   a. 2       b. 3       c. 4       d. 5

4. How many cupcakes are on each tray if 63 cupcakes are divided evenly onto 7 trays?
   a. 7       b. 8       c. 9       d. 10

5. What number is equivalent to 72/12?
   a. 5       b. 6       c. 8       d. 9

Show Your Work
6. What whole number has the same value as the fraction 18/3?

7. Jarrod has $50. He puts equal amounts into each of his 5 pockets. How much money is in each pocket?

8. The number you divide another number by is called the _________.

Explain Your Answer
9. How are subtraction and division related?
Inverse Operations Test

Multiple Choice
1. What is the missing number in this fact family?
   \[3 \times \_ = 12\]
   \[12 \div 3 = \_\]
   \[12 \div \_ = 3\]
   a. 4  b. 5  c. 6  d. 7

2. What is the missing number in this fact family?
   \[9 \times \_ = 27\]
   \[27 \div 9 = \_\]
   a. 2  b. 3  c. 4  d. 6

Show Your Work
5. What are the other three facts in the fact family that includes \(7 \times 6 = 42\)?

6. What fact family includes the three numbers 3, 8, and 24?

Explain Your Answer
7. How are multiplication and division related?

Use the above section of the multiplication table to answer the following.

3. \(20 \div 4 = \_\)
   a. 4  b. 5  c. 6  d. 7

4. \(42 \div 7 = \_\)
   a. 4  b. 5  c. 6  d. 7

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Multiple Choice

1. 40 ÷ 1 = _____
   a. 1  b. 4  c. 10  d. 40

2. How much is 24 divided by 24?
   a. 0  b. 1  c. 24  d. 48

3. 16 ÷ 2 = _____
   a. 1  b. 4  c. 8  d. 16

4. How much is 45 divided by 5?
   a. 8  b. 9  c. 12  d. 40

5. Pedro had 27 dog biscuits and 9 dogs. He split the biscuits equally among the dogs. How many biscuits did each dog receive?
   a. 2  b. 3  c. 4  d. 6

6. A dance competition is judged on a scale of 0 to 5. The four judges gave Cara scores of 3, 4, 5, and 4. What was Cara’s average score?
   a. 2  b. 3  c. 4  d. 5

Show Your Work

7. 48 ÷ 6 = _____

8. 12 ÷ 1 = _____

9. In the first six basketball games of the season, Brooklyn made 7, 9, 1, 12, 10, and 3 baskets. How many baskets did she average per game?

Explain Your Answer

10. Why is there no solution to a problem that divides a number by zero?
Multiple Choice

   a. 3 1/4  b. 5 1/4  c. 5 3/4  d. 7 1/4

2. Divide 14 ÷ 3.
   a. 3 1/3  b. 3 3/4  c. 4 2/3  d. 4 1/7

3. Which number is not divisible by 6?
   a. 12  b. 18  c. 27  d. 42

4. Which set of numbers only includes numbers that divide 144 evenly?
   a. 1, 3, 6, 7, 12
   b. 1, 2, 4, 6, 8, 9
   c. 1, 3, 4, 5, 9, 12
   d. 1, 2, 3, 4, 6, 7, 8, 9

5. When 62 is divided by 9, what is the remainder?
   a. 3  b. 4  c. 7  d. 8

6. Divide 34 ÷ 8. What is the remainder?
   a. 2  b. 3  c. 4  d. 6

Show Your Work

7. Divide 51 ÷ 7. Write the remainder as a fraction.

8. Is 813 divisible by 6?

Explain Your Answer

9. Darryl has 20 chocolate covered pretzels for himself and his 2 friends. Can he divide the pretzels evenly without breaking any pretzels? Explain.
Multiple Choice

1. Nathan is bringing flashlights for his class for a campout. He has 22 flashlights and boxes that will hold 8 flashlights each. How many boxes does he need?
   a. 2    b. 3    c. 4    d. 5

2. This year 45 players signed up for a beginners volleyball league. Each team must have at least 6 players. What is the greatest number of teams that can be formed?
   a. 5    b. 6    c. 7    d. 8

3. A roller coaster seats three people to a seat. There are 19 people standing in line. If each seat is filled to capacity, how many people will be in the last seat?
   a. 1    b. 2    c. 3    d. cannot be determined

4. There are 65 people seated at tables. Each table seats up to 10 people. How many full tables are possible?
   a. 5    b. 6    c. 7    d. 8

Show Your Work

5. There are 37 students in Mrs. Jacob’s class. She wants to buy one folder for each student. If folders are sold in packages of 5, how many packages must she buy?

6. Jodi had a package of 15 rubber wrist bands. She gave each of her four friends as many as she could without giving them an unequal amount. How many wristbands did she have left over?

Explain Your Answer

7. An apple orchard packages apples into cartons that hold 8 apples each. Maria picked 60 apples. What question would have an answer that requires increasing the quotient? What question would have an answer that requires dropping the remainder?
Dividing Larger Numbers Test

Multiple Choice
1. Divide 85 ÷ 5.
   a. 12   b. 13   c. 15   d. 17

2. Divide 97 ÷ 4.
   a. 21 1/4   b. 21 3/4   c. 24 1/4   d. 24 3/4

3. Over a 5 week span, Chelsea spent a total of 180 hours at work. How many hours did she average at work per week?
   a. 32   b. 35   c. 36   d. 42

4. 923 ÷ 3 = _____
   a. 307R2   b. 311R1   c. 313R1   d. 370R2

5. 9 \(\overline{8953}\)
   a. 195R3   b. 915R3   c. 994R7   d. 995R3

6. On opening night, a movie theater sold $1,712 in tickets for the first showing. If each ticket cost $8, how many tickets were sold?
   a. 202   b. 214   c. 284   d. 314

Show Your Work
7. 6 \(\overline{2748}\)

8. Four friends spent the day at a golf course. The course runs a special that includes 4 rounds of 18 holes of golf and a cart rental for $108. If the cost was split evenly, how much did each friend pay?

Explain Your Answer
9. How do you write 95 ÷ 5 = ___ using long division? Explain using the terms divisor, dividend, and quotient.

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Multiple Choice

1. Divide 564 ÷ 47.
   a. 12   b. 13   c. 15   d. 17

2. Divide 5488 ÷ 98.
   a. 55   b. 56   c. 62   d. 71

3. A sprinkler system sprays one thousand one hundred forty-seven liters of water every sixty-two minutes. How many liters of water is that per minute?
   a. 16 15/31   b. 17 17/62
   c. 18 1/2   d. 18 9/31

4. 18,200 ÷ 70 = _____
   a. 196   b. 206
   c. 248   d. 260

5. A chain restaurant is opening 51 new stores. They are hiring 1,377 new employees for these stores. How many new employees is that per store?
   a. 27   b. 29
   c. 37   d. 207

Show Your Work

6. Justin’s income is $43,940 per year. How much does he earn per week?

7. Divide 7296 by 342. Write any remainder as a fraction in lowest terms.

Explain Your Answer

8. Anne said 2,736 divided by 38 is 72. Explain how you can check her solution.
Multiple Choice
1. \(3,600 \div 10 = \) _____
   a. 36   b. 360   c. 3,600   d. 36,000

2. How much is 80 divided by 4?
   a. 2   b. 4   c. 20   d. 40

3. \(630 \div 70 = \) _____
   a. 8   b. 9   c. 80   d. 90

4. How much is 12,000 divided by 400?
   a. 30   b. 300   c. 3,000   d. 8,000

5. Brett saved 6,000 pennies. How many dollars did he save in pennies?
   a. 6   b. 60   c. 600   d. 6,000

6. An apartment building has 20 floors. There are 400 apartments in all. Each floor has the same number of apartments. How many apartments are on each floor?
   a. 2   b. 10   c. 20   d. 40

Show Your Work
7. Divide 3,000 by 10, 100, and 1,000.

8. Divide 27,000 by 9, 90, and 900.

9. Molly answered 300 multiplication facts in 6 minutes. How many facts is that each minute?

Explain Your Answer
10. Explain how you can solve \(640 \div 80\) using mental math.
Dividing a Decimal Test

Multiple Choice
1. \(7.2 \div 3 = \) ____
   a. 2.04  b. 2.4  c. 2.42  d. 24

2. How much is 20 divided by 15?
   a. 0.25  b. 0.75  c. 1.3  d. 7.5

3. \(8.1 \div 9 = \) ____
   a. 0.9  b. 1.9  c. 9  d. 90

4. A package of four bottles of a sports drink costs $5.28. What is the cost per bottle?
   a. $1.07  b. $1.32  c. $1.37  d. $1.70

5. A 5.4 pound bag of coffee beans is evenly divided between 6 smaller bags. How many pounds of coffee beans are in each smaller bag?
   a. 0.8  b. 0.85  c. 0.9  d. 0.92

6. Lawrence worked 12 days for a total of 112.8 hours. How many hours did he average per day?
   a. 1.9  b. 8.9  c. 9.3  d. 9.4

Show Your Work
7. \(0.56 \div 8 = \) ____

8. \(46.31 \div 11 = \) ____

9. Hannah ran one mile in 10 minutes. What is the average distance in miles that Hannah ran each minute?

Explain Your Answer
10. The readings on a dial were 5.2, 7.1, 8, 6, and 10.2. Explain how to find the average dial reading.
Multiple Choice

1. $0.6 \div 0.2 = \underline{\hspace{1cm}}$
   a. 0.03  b. 0.3  c. 1.2  d. 3

2. How much is 13.44 divided by 2.4?
   a. 0.56  b. 4.6  c. 5.6  d. 6.4

3. $96 \div 0.3 = \underline{\hspace{1cm}}$
   a. 3.2  b. 32  c. 230  d. 320

4. There are 1.6 kilometers in a mile. How many miles are there in 67.84 kilometers?
   a. 42.4  b. 44.2  c. 108.544  d. 113.07

5. What is the average speed of a car that traveled 351 miles in 6.75 hours?
   a. 51 mph  b. 52 mph  c. 52.5 mph  d. 57 mph

Show Your Work

6. Divide 113 by 4.52.

7. $64.74 \div 8.3 = \underline{\hspace{1cm}}$

8. If 4.4 pounds of nails cost $24.64, how much does one pound of nails cost?

Explain Your Answer

9. Divide 45 by 1, 0.1, 0.01. What pattern do you see? How can you use this?
Dividing Fractions Test

Multiple Choice

1. What number is the reciprocal of 8/2?
   a. 1/4    b. 1/2    c. 2    d. 4

2. Divide 1/6 by 1/2.
   a. 1/12    b. 1/3    c. 3    d. 12

3. Divide 18 by 1/3.
   a. 3    b. 6    c. 17    d. 54

4. Freida has 3/4 gallon of water with fertilizer for her seedlings. She is giving each seedling 1/8 of a gallon of the water. How many seedlings can she water?
   a. 6    b. 4    c. 3    d. 1/4

5. A 12-mile hiking trail has a marker every 1/6 of a mile. How many markers are on the trail?
   a. 2    b. 36    c. 48    d. 72


8. 1/9 ÷ 3 = _____

9. One smoothie uses 3/4 cup of milk. How many smoothies can you make from 6 cups of milk?

Show Your Work

6. What is the reciprocal of 1/5?

Explain Your Answer

10. If a whole number is divided by a proper fraction, will the result be greater than or less than the original number? Explain.
Mixed Numbers Test

Multiple Choice
1. What improper fraction has the same value as $1\frac{2}{3}$?
   a. $\frac{5}{2}$  
   b. $\frac{9}{3}$  
   c. $\frac{3}{5}$  
   d. $\frac{5}{3}$

2. Multiply. $2\frac{1}{3} \times 4$
   a. $8\frac{2}{3}$  
   b. $8\frac{3}{4}$  
   c. $9\frac{1}{4}$  
   d. $9\frac{1}{3}$

3. Multiply. $1\frac{1}{2} \times 2\frac{1}{2}$
   a. $1\frac{1}{2}$  
   b. $2\frac{1}{4}$  
   c. $3\frac{1}{4}$  
   d. $3\frac{3}{4}$

4. Divide 24 by $3\frac{1}{3}$.
   a. $6\frac{1}{2}$  
   b. $7\frac{1}{5}$  
   c. $7\frac{1}{3}$  
   d. $80$

5. Divide $\frac{3}{16}$ by $2\frac{1}{4}$.
   a. $\frac{1}{3}$  
   b. $\frac{1}{4}$  
   c. $\frac{1}{12}$  
   d. $\frac{27}{64}$

6. A truckload of gravel weighs $1\frac{3}{4}$ ton. A driveway used 7 tons of gravel. How many truckloads were needed?
   a. 4  
   b. 5  
   c. 6  
   d. 8

Show Your Work
7. Perry can make 6 bow ties from one foot of fabric. If he has $3\frac{1}{2}$ feet of fabric, how many ties can he make?

8. Michel made 84 ounces of pasta sauce. Each serving of pasta uses 4 $\frac{1}{2}$ ounces of sauce. How many servings can Michel make?

Explain Your Answer
9. Ricki said that $2\frac{1}{2} \div 1\frac{1}{4} = 3\frac{1}{8}$. What is Ricki’s error?
Estimation: Division Test

1. Estimate $29 \div 3$.
   a. 6  b. 8  c. 9  d. 10

2. Estimate $1720 \div 89$.
   a. 12  b. 15  c. 20  d. 25

3. Estimate $35,642 \div 567$.
   a. 30  b. 60  c. 200  d. 600

4. An elevator has a sign that says the maximum capacity is 18 people, or 3,000 pounds. About how many pounds could each person weigh to be at maximum capacity?
   a. 100 pounds  b. 120 pounds  c. 150 pounds  d. 200 pounds

5. Carol’s dogs weigh 10.8, 6.4, and 9.7 pounds. About what is the average weight of her dogs?
   a. 7 pounds  b. 8 pounds  c. 9 pounds  d. 10 pounds

Show Your Work

6. Use multiples of ten and compatible numbers to estimate the quotient of $87,240 \div 813$.

7. Gary purchased 4 packages of cookies for a party. Each package has 28 cookies. If 19 people are at the party, about how many cookies can each person have?

Explain Your Answer

8. Why might rounding to a given place value be difficult to use to estimate division?
Answers
Basic Facts Test
Page 2: 1. c 2. c 3. b 4. d 5. c 6. d 7. 40 8. $8 \times 4$ 9. Sharon spent 30 minutes sitting down. 10. When you know that $3 \times 7 = 21$, you can add one more 3 to 21 to find the product of 3 and 8. $21 + 3 = 24$.

Powers and Multiples of Ten Test
Page 3: 1. c 2. b 3. d 4. d 5. c 6. b 7. 3,000 8. Colton has ridden 800 miles on the stationary bike. 9. When a number begins with the digit one, followed by zeros and no other digits, the number is a power of ten.

Multiplication Properties Test
Page 4: 1. a 2. d 3. b 4. b 5. Any three equations that multiply a number and zero, for example: $4 \times 0 = 0$, $76 \times 0 = 0$, $0 \times 12 = 0$. 6. The Property of One says that when you multiply any number and one the result is the original number. Because the number does not change, this is also called the Identity Property.

The Distributive Property Test
Page 5: 1. a 2. c 3. b 4. d 5. $5(13 - 6) = 5(7) = 35$ 6. You can find the number of hair bands each girl made by multiplying the number of packets they made by 2. Kim made 14 packets, so she made $2(14)$ hair bands. Yolanda made 26 packets, so she made $2(26)$ hair bands. For the total, add the two amounts, $2(14) + 2(26)$. You can use the distributive property to rewrite $2(14) + 2(26)$ as $2(14 + 26)$. If you add the values inside the parentheses first, you get $2(40)$, or 80. In all, the girls made 80 hairbands.

Use The Facts Test
Page 6: 1. b 2. c 3. d 4. a 5. c 6. c 7. b 8. 826 9. Celine earned $9,633. 10. A number is written in expanded form by writing it as the sum of the values for each place. For example, 481 is the same as $400 + 80 + 1$. You can use the distributive property to multiply each of the addends by the other factor. Then, add the results for the total product.

Regrouping Test
Page 7: 1. c 2. b 3. d 4. a 5. b 6. c 7. d 8. 180 9. There can be 512 passengers seated on the plane. 10. Answers may vary: In both addition and multiplication 10 units in one place value are regrouped as 1 unit in the next larger place value. It is different because you have to remember that even though you are multiplying, you need to add the regrouped units.
Multiplying by Two Digits Test
Page 8:  1. c  2. b  3. d  4. a  5. a  6. c
7. 2,805  8. There are 3,600 seconds in one hour. 9. The word “times” in the problem tells you this is a multiplication problem. Multiply the distance Theo lives from their grandmother by 24 to find the distance Cheryl lives from their grandmother. 19 \times 24 = 456. Cheryl lives 456 miles from her grandmother.

Multiplying Larger Numbers Test
Page 9:  1. b  2. d  3. c  4. b  5. d  6. The manufacturer makes 3,100 cars in 25 days. 7. Write one of the two factors in expanded notation. Expanded notation separates the number into addends by place value. 307 \times 41 = 307 \times (40 + 1). Multiply each of the addends by the other factor. 307 \times (40 + 1) = (307 \times 40) + (307 \times 1) = (12,280) + (307). Add the partial products for the total product. 12,280 + 307 = 12,587.

Multiplying Decimals Test
Page 10:  1. b  2. b  3. a  4. c  5. c  6. b  7. 0.81  8. 21  9. They make 372 gallons of juice each hour. 10. First multiply the numbers as if they were whole numbers. Then count the number of decimal places in the factors combined. Place the decimal point using the same number of decimal places as you counted.

Multiplying Fractions Test
Page 11:  1. d  2. d  3. b  4. c  5. b  6. c  7. 1/10  8. Adria typed 160 words in 5 1/2 minutes. 9. Garrett consumed 1 7/8 cups of sugar. 10. When you simplify fractions before you multiply, it leaves smaller numbers to multiply. Simplifying first also leaves less simplification after you multiply.

Estimation: Multiplication Test
Page 12:  1. c  2. d  3. b  4. Heidi needs about 102 square feet of canvas. 5. Estimate: 400,000 Exact answer: 410,268. The estimate is close. 6. Estimate: 36 Exact answer: 35 11/24 The estimate is close. 7. If you round factors to the nearest ten instead of nearest hundred, the rounded factors are closer to the original factors. This will give a closer estimate.

Division Test
Page 13:  1. a  2. d  3. b  4. c  5. b  6. 6  7. $10  8. divisor  9. One way to think of division is repeated subtraction. Take the same number out of a total repeatedly. For example, 10/2 asks how many times you can subtract 2 from 10.
Inverse Operations Test
Page 14: 1. a 2. b 3. b 4. c 5. $6 \times 7 = 42$, $42 \div 6 = 7$, $42 \div 7 = 6$
6. $3 \times 8 = 24$, $8 \times 3 = 24$, $24 \div 3 = 8$, $24 \div 8 = 3$
7. Multiplication and division are inverse operations. They do the opposite of each other.

Division Facts Test
10. Possible answer: If you think of division as taking a set and dividing it into smaller parts, it is impossible to take a set and divide it into zero parts. There is no solution. OR If you write a division problem that has a divisor of 0 as a multiplication problem, such as $5 \div 0 = \_\_$, it can be rewritten as $0 \times \_\_ = 5$, and there is no number that makes this a true equation. There is no solution.

Remainders Test
Page 16: 1. b 2. c 3. c 4. b 5. d 6. a 7. $7^{2/7}$ 8. No, 813 is not divisible by 6.
9. No, Darryl can’t divide the pretzels evenly without breaking any. He has 20 pretzels to divide between 3 people (himself and 2 friends). He can give each person 6 pretzels, but there will be 2 left over.

Interpreting Remainders Test
Page 17: 1. b 2. c 3. a 4. b 5. Mrs. Jacobs must buy 8 packages of folders in order for each student to have one folder.
6. Jodi had 3 wristbands left over.
7. Possible answers: To answer the question “How many cartons are needed to package all of the apples?” you would need to increase the quotient. To answer the question “How many full cartons can be made?” you would need to drop the remainder.

Dividing Larger Numbers Test
9. The problem $95 \div 5 = \_$ in words says 95 divided by 5 equals what. The dividend, or number being divided, is 95. In long division this is under the long division symbol. The divisor, 5, is on the left of the long division symbol. The quotient, or answer, is unknown. It will go above the symbol when the problem is solved.

Dividing by Larger Numbers Test
7. You can use multiplication to check the solution to a division problem. $72 \times 38 = 2,736$. Anne is correct.
Division: Powers and Multiples of Ten Test
Page 20:  1. b  2. c  3. b  4. a  5. b  6. c  7. 300, 30, 3  8. 3,000, 300, 30  9. Molly answered 50 multiplication facts each minute.  10. Both 640 and 80 end in zero. You can remove one zero from each without changing the answer. 640 ÷ 80 has the same answer as 64 ÷ 8, which is a basic fact. 64 ÷ 8 = 8.

Dividing a Decimal Test
Page 21:  1. b  2. c  3. a  4. b  5. c  6. d  7. 0.07  8. 4.21  9. Hannah ran an average distance of 0.1 miles each minute.  10. An average is found by adding all of the values, and dividing the sum by the number of addends. There are 5 dial readings. The sum of the readings is 5.2 + 7.1 + 8 + 6 + 10.2 = 36.5. 36.5 divided by 5 is 7.3. The average dial reading is 7.3.

Dividing by a Decimal Test
Page 22:  1. d  2. c  3. d  4. a  5. b  6. 25  7. 7.8  8. One pound of nails costs $5.60.  9. 45 ÷ 1 = 45, 45 ÷ 0.1 = 450, 45 ÷ 0.01 = 4,500. Each decimal place added to the divisor moves the decimal one place to the right.

Dividing Fractions Test
Page 23:  1. a  2. b  3. d  4. a  5. d  6. 5  7. 3/2 or 1 1/2  8. 1/27  9. You can make 8 smoothies.  10. The result of a whole number being divided by a proper fraction will be greater than the original number. A proper fraction is one that has a numerator that is less than the denominator. This means the value is less than one. The reciprocal then will always be greater than one. When you multiply a number by a number that is greater than one, the result is a greater number.

Mixed Numbers Test
Page 24:  1. d  2. d  3. d  4. b  5. c  6. a  7. Perry can make 21 bow ties.  8. Michel can make 18 2/3 servings of pasta.  9. Ricki multiplied instead of dividing.  2 1/2 ÷ 1 1/4 = 3 1/8. To divide, you must multiply by the reciprocal of the second number. The problem becomes 5/2 ÷ 5/4 = 5/2 × 4/5 = 2.

Estimation: Division Test
Page 25:  1. d  2. c  3. b  4. c  5. c  6. 87,240 ÷ 813 is about 110.  7. Each person can have about 6 cookies.  8. When you round to a place value, it does not always mean that the two numbers will be easy to divide. Take 27 ÷ 4 as an example. If you round 27 to 30, it is still not easy to divide 30 by 4. Instead, you can use a number that is close and easy to divide by 4, like 28 and estimate. 27 ÷ 4 is about 7.