10 SIMPLIFYING EQUATIONS

Teaching in the Fast Lane

TABLE OF CONTENTS

TO THE TEACHER

- This product is meant to be a no frills, all action tool for cementing the concept of simplifying equations in preparation for standardized testing.
- Each activity can be completed in a variety of ways to fit your classroom needs.
- It was created with the following standards in mind:
  - TEKS
    - 5.4f simplify numerical expressions that do not involve exponents, including up to two levels of grouping
  - Common Core
    - CCSS.MATH.CONTENT.5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

PREP RECOMMENDATIONS

- Each activity is created in black and white to conserve color ink.
  - Using colored paper to differentiate different parts in each activity or the different stations will help students to stay organized.
- If you plan to use the activities for small group or partner activities over time, I would recommend laminating them for durability.

CONTENT VOCABULARY

simplify

two-levels of grouping

decreased

remaining

equivalent

expression

numerical expression

half

value

simplify

expression

two levels of grouping

numerical expression

decreased

half

remaining

value

equivalent

WHAT'S THE VALUE?

Simplify each expression to find its value.

TEACHER SUGGESTIONS WHAT'S THE VALUE?

- In this activity students are asked to simplify each expression to find the value.
- This activity can be used in a variety of ways:
  - ✓ Small group with teacher guidance
  - ✓ As another activity for practice
  - ✓ Independently to assess

Materials

Included:
- Expression Cards
- Recording Sheet
- Answer Key

Not Included:
- Pencil

1

16+(4×3)-12

2

36+(3×2)÷6

3

90-2(60÷10)-1

4

6(50÷2)-125

5

12-(2×3)+19

6

14×(6-5)+16

7

$47+(16\div2)\times3$

8

$60+(12\times6)-18$

9

$72\div(3\times4)+18$

10

$80\times(3\times9)-65$

11

$54+(8\div4)\times7$

12

$19+(7\times3)-4$

Name _____ #_____ Date_____

WHAT'S THE VALUE? RESPONSE SHEET

Simplify each expression to find its value. Make sure to record all your work.

1	2	3
4	5	6

more on back

Name _____ #_____ Date_____

WHAT'S THE VALUE? RESPONSE SHEET

Simplify each expression to find its value. Make sure to record all your work.

7	8	9
10	11	12

WHAT'S THE VALUE?
ANSWER KEY

1 16	2 37	3 [illegible]
4 25	5 [illegible]	6 30
7 71	8 114	9 24
10 2,095	11 68	12 36

WORD PROBLEMS

Read and evaluate each word problem, then simplify the expression.

TEACHER SUGGESTIONS WORD PROBLEMS

- In this activity students are asked to read and evaluate word problems then simplify each expression to find the value.
- This activity can be used in a variety of ways:
  - ✓ Small group with teacher guidance
  - ✓ A partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- Word Problem Cards
- Recording Sheet
- Answer Key

Not Included:
- Pencil

1

When Wynona woke up the temperature outside was eighty degrees. The sun warmed up the air 3 degrees per hour from eight until noon. Then it cooled off 4 degrees by the afternoon.

80+(3×4)-4

What was the temperature that afternoon?

2

Krystal bought 2 shirts for $7 each, a pair of pants for $15, and a pair of shoes for $22. She had a coupon for half off her total purchase.

[15+(2×7)+22]÷2

How much money did Krystal spend?

3

Angela bought 2 bags of candy with 90 pieces of candy each. She also bought four boxes of cookies with 12 cookies each. She cut each of the cookies into four pieces.

2×90)+4(4×12)

How many pieces of candy or cookie does Angela have?

4

Birdie Cat ate three 8 oz. cans of cat food along with one 6 oz. can of tuna, and four 5 oz. bowls of dry food.

(3×8)+6+(4×5)

How much food did Birdie Cat eat?

5

Sherrie watched a 90 minute movie, and then took a break before watching a documentary that was half the length of the movie. Finally, she watched a half hour show.

90+(90÷2)+30

How long did Sherrie watch movies or shows?

6

A school bought a large box of popcorn with 20 five oz. bags, a medium box with 12 five oz. bags, and a small box with 8 five oz. bags.

(20×5)+(12×5)+(8×5)

How many ounces of popcorn did they buy?

7

Randall drove 80 mph for two hours, 60 mph for three hours, and 46 mph for another hour. The next day he drove half the distance.

[(80×2)+(60×3)+46]÷2

How far did he drive the next day?

8

An auditorium has ten rows with 20 seats in each row down the middle and two sections with 8 rows of ten seats down each side. Eighteen of the seats are broken.

(10×20)+2(8×10)-18

How many seats are able to be filled?

9

Rob saved $20 a month for eighteen months. He spent $37 on a new video game, but then received a check for $100 from his Grandma.

(20×18)-37+100

How much money does Rob have now?

10

Lee took a trip to the b[illegible]. He spent $44 on gas, $120 on a hotel, half as mu[illegible] on meals as he [illegible]d on the hote[illegible] and $20 less on a m[illegible]e than on ga[illegible]

44+12[illegible]+(120÷[illegible]+(4[illegible]-20)

How much did he spend on his weekend get away?

11

A roller coaster takes [illegible] minutes to complete the track. It also takes half that amount of time to unload and reload with passengers.

60÷[4+(4÷2)]

How many circuits of the track can the roller coaster make in one hour?

12

A two day math test has 110 questions on it. Half of the questions are to be completed on the first day. On the second day by noon, Chris has completed ⅕ of the remaining questions.

(110÷2)-[(110÷2)÷5]

How many questions does Chris have left?

Name _____ #_____ Date_____

WORD PROBLEMS RESPONSE SHEET

Read and evaluate each word problem, and then simplify the expression to find the value.

1	2	3
4	5	6

more on back

Name _____ #_____ Date_____

WORD PROBLEMS RESPONSE SHEET

Read and evaluate each word problem, and then simplify the expression to find the value.

7	8	9
10	11	12

WORD PROBLEMS ANSWER KEY

1 88 degrees	**2** $25.50	**3** 372 pieces of candy in cookie	**4** 50 ounces of food
5 165 minutes	**6** 200 bags	**7** 193 miles	**8** 342 seats
9 [illegible]	**10** $248	**11** 10 circuits	**12** 44 questions

EXPRESSION MATCH

Match each expression to its value.

TEACHER SUGGESTIONS EXPRESSION MATCH

- In this activity students are asked to simplify each expression and match it to its value.
- This activity can be used in a variety of ways
  - ✓ Small group with teacher guidance
  - ✓ As partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- Expression Cards
- Recording Sheet
- Answer Key

Not Included:
- Pencil

1

13+(9×3)-4

2

6+(3×2)÷2

3

90-4(60÷10)-19

4

4(100÷2)-20

5

140-(6×3)+9

6

11×(6+5)-56

7

$7+(16\div4)\times8$

8

$60+(6\times6)-25$

9

$90\div(3\times3)+21$

10

$63\times(3\times2)\div3$

11

$29-(56\div8)\times4$

12

$345+(10\times3)-40$

36	9	47	180
131	65	39	71
31	126	57	335

Name _____ #_____ Date_____

EXPRESSION MATCH RESPONSE SHEET

Simplify each expression and match it to its value

1	2	3
4	5	6

more on back

Name _____ #_____ Date_____

EXPRESSION MATCH RESPONSE SHEET

Simplify each expression and match it to its value

7	8	9
10	11	12

EXPRESSION MATCH
ANSWER KEY

1 36	**2** 9	**3** 47	**4** 180
5 131	**6** 65	**7** 39	**8** 71
9 31	**10** 126	**11** 57	**12** 335

WRAP AROUND

Simplify each expression and line it up with the card that displays its value. When complete, all the cards should form a complete circle.

TEACHER SUGGESTIONS WRAP AROUND

- In this activity students are asked to simplify expressions and line them up to form a complete circuit.
- This activity can be used in a variety of ways
  - ✓ Small group with teacher guidance
  - ✓ As partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- Wrap Around Cards
- Recording Sheet
- Answer Key

Not Included:
- Pencil

12	390	81
12×(100÷4)+90	100+(15÷3)×24	6+(200-125)×8
606	26	21
(8×3)+(6×2)-10	77÷(5+6)×3	45×(3-1)+22

112	**48**	**48**
4÷(6÷3)×24	38+(10÷4)17	12+(12-2)×9
372	**77**	**11**
164-(17+12)×3	(72÷12)+(64÷8)-3	(16×3)-(12×4)+12

Name _____ #_____ Date_____

WRAP AROUND RESPONSE SHEET

Simplify each expression and line it up with the card that displays its value. When complete, all the cards should form a complete circle. Use the space below to show your work.

1	2	3
4	5	6

more on back

Name _____ #_____ Date_____

WRAP AROUND RESPONSE SHEET

Simplify each expression and line it up with the card that displays its value. When complete, all the cards should form a complete circle. Use the space below to show your work.

7	8	9
10	11	12

WRAP AROUND ANSWER ORDER

1 390	**2** 81	**3** 604	**4** 26
5 21	**6** 12	**7** 48	**8** 46
9 372	**10** 77	**11** 11	**12** 12

QR CODES

Scan the "START" card and follow the directions to use all cards stopping at the "END" card.

TEACHER SUGGESTIONS
QR CODES

- In this activity students are asked to scan QR codes and follow the directions to find the value of the given expression.
- This activity can be used in a variety of ways:
  - ✓ Small group with teacher guidance
  - ✓ As a partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- QR Code Cards

Not Included:
- A device capable of scanning QR Codes such as a smartphone or tablet

START

80+(3×4)-4

4(100÷2)-20

29+(56÷8)×4

(10×2)+2(8×10)

11×(6+5)-56

12-(2×3)+19

73+(9×3)-4

(110÷2)-(110÷5)

77÷(5+6×3

140-(6×3)+9

(2×90)+(4×12)

END

MISSING NUMBERS

Complete the expression by working backwards to find the missing number.

TEACHER SUGGESTIONS MISSING NUMBERS

- In this activity students are asked to work backwards to find the missing number in the expression.
- This activity can be used in a variety of ways
  - ✓ Small group with teacher guidance
  - ✓ Partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- Missing Number Cards
- Recording Sheet
- Answer Key

Not Included:
- Pencil

1

 ×(2+4)-19=17

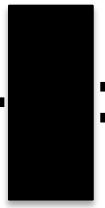
2

3+(5× )-12=11

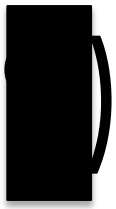
3

6÷(5-3)+  =30

4

2×(12÷3)+  =15

5

13+(7× )+8=84

6

 -(12÷4)+72=76

7

$12\times(\blacksquare+1)-9=27$

8

$40\div(5\times 4)-\blacksquare=0$

9

$\blacksquare+(5\times 7)+7=42$

10

$27\div(3\times\blacksquare)+7=10$

11

$16-(\blacksquare\times 2)+6=8$

12

$7\times(20\div 4)-\blacksquare=33$

Name _____ #_____ Date_____

MISSING NUMBERS RESPONSE SHEET

Complete the expression by working backwards to find the missing number.

1	2	3
4	5	6

more on back

Name _____ #_____ Date_____

MISSING NUMBERS RESPONSE SHEET

Complete the expression by working backwards to find the missing number.

7	8	9
10	11	12

MISSING NUMBERS ANSWER KEY

1	**2**	**7**	**8**
6×(2+4)-19=17	3+(5×4)-12=11	12×(?+1)-?=27	?÷(?×4)-2=0
3	**4**	**9**	**10**
6÷(5-3)+27=30	2×(?-3)+7=13	6?(5×7)+7=48	27÷(3×3)+7=10
5	**6**	**11**	**12**
13-(7×9)+8?=8	7-(?÷4)+72=76	16-(7×2)+6=8	7×(20÷4)-2=33

EXPLAIN IT

Explain the order of operations as you would use it to simplify the expression.

TEACHER SUGGESTIONS
EXPLAIN IT

- In this activity students are asked to use their math vocabulary to explain the order of operations and it would be used to simplify the given expression.
- This activity can be used in a variety of ways:
  - ✓ Small group with teacher guidance
  - ✓ A partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- Recording Sheet
- Rubric

Not Included:
- Pencil

Name _____ #_____ Date_____

EXPLAIN IT RESPONSE SHEET

Explain the order of operations as you would use it to simplify this expression.

$$2\times(12\div3)+7=15$$

Name _____ #_____ Date _____

EXPLAIN IT RUBRIC

	1 point	3 points	5 points
Order of Operations	The order of operations is not followed.	An attempt at following order of operations was made, but with mistakes.	The order of operations was followed throughout the problem.
Explanation	An explanation was not given.	A partial explanation was given.	An accurate and thorough explanation was given.
Completeness	The assignment is incomplete.	The assignment is almost complete, but is missing some components.	The assignment is thorough and complete.
Grammar, Spelling, and Punctuation	Grade level appropriate grammar, spelling, and punctuation were not used.	Grade level appropriate grammar, spelling, and punctuation was attempted, but there are some mistakes.	Grade level appropriate grammar, spelling, and punctuation are used.

SCORE ___/20

PLACE THE PARENTHESIS

Place the parenthesis in each expression to make the expression equal to the given solution.

TEACHER SUGGESTIONS PLACE THE PARENTHESIS

- In this activity students are asked to place the parenthesis in each expression to make the expression equal to the given solution.
- This activity can be used in a variety of ways:
  - ✓ Small group with teacher guidance
  - ✓ As partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- Expression Cards with missing Parenthesis
- Recording Sheet
- Answer Key

Not Included:
- Pencil

1

12×2+4-9=63

2

13+6÷2-12=4

3

16÷2+2-7=1

4

12×4×3+7=151

5

20+3×9-14=33

6

9÷12÷4+32=35

7

10+2×4-9=9

8

11×24÷12+11=33

9

72÷32-4+12=21

10

40÷5+5+7=11

11

45+1×6-19=50

12

7×12÷4+22=43

Name _____ #_____ Date_____

PLACE THE PARENTHESIS RESPONSE SHEET

Evaluate each expression and place the parenthesis in order to make the expression equal the given value.

1	2	3
4	5	6
7	8	9
10	11	12

PLACE THE PARENTHESIS ANSWER KEY

1 12×(2+4)-9=63	**2** 13+(6÷2)-12=4
3 16÷(2+2)+7=11	**4** 12×(×3)+7= 51
5 20+(3 ×9)- 4=3	**6** 9 (12 4)+3 =35

7 10+(2×4)-9=9	**8** 11×(24÷12)+11=33
9 72÷(32÷4)+12=21	**10** 40÷(5+5)+7=11
11 45+(4×6)-19=50	**12** 7×(12÷4)+22=43

NAME THE STEPS

Complete the table naming the steps used to simplify each equation.

TEACHER SUGGESTIONS NAME THE STEPS

- In this activity students are asked to complete a table by naming the steps taken to simplify an equation.
- This activity can be used in a variety of ways
  - ✓ Small group with teacher guidance
  - ✓ partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- Table Cards
- Recording Sheet
- Answer Key

Not Included:
- Pencil

1

$(6-4)\times(3\times2)\div2$

2

$36\div(3\times1)\times7$

3

$(3\times3)\div(2+1)\div2$

4

$42\div(3+4)\times2$

Name _____ #_____ Date_____

NAME THE STEPS RESPONSE SHEET

Complete the table naming the steps to simplify each expression.

1

2

more on back

Name _____ #_____ Date_____

NAME THE STEPS RESPONSE SHEET

Complete the table naming the steps to simplify each expression.

3

4

NAME THE STEPS ANSWER KEY

1

(6-4)×(3×2)÷2	
2×(3×2)÷2	Subtract the first set in parenthesis
2×6÷2	Multiply the second set in the parenthesis
12÷2	Multiply two times six
6	Divide twelve by two

2

36÷(3×4)+7	
36÷12+7	Multiply the set in the parenthesis
3+7	Divide 36 by 12
21	Multiply 3 times 7

NAME THE STEPS ANSWER KEY

3

(3+3)÷(2+1)÷2	
6÷(2+1)÷2	Add the first set of parenthesis
6÷3÷2	Add the second set of parenthesis
2÷2	Divide six by three
1	Divide two by two

4

42÷(3+4)×2	
42÷7×2	Add the set in the parenthesis
6×2	Divide 42 by 7
12	Multiply 6 times 2

SIMPLIFY PUZZLE

Simplify each equation and match it to its value to complete the puzzle.

TEACHER SUGGESTIONS SIMPLIFY PUZZLE

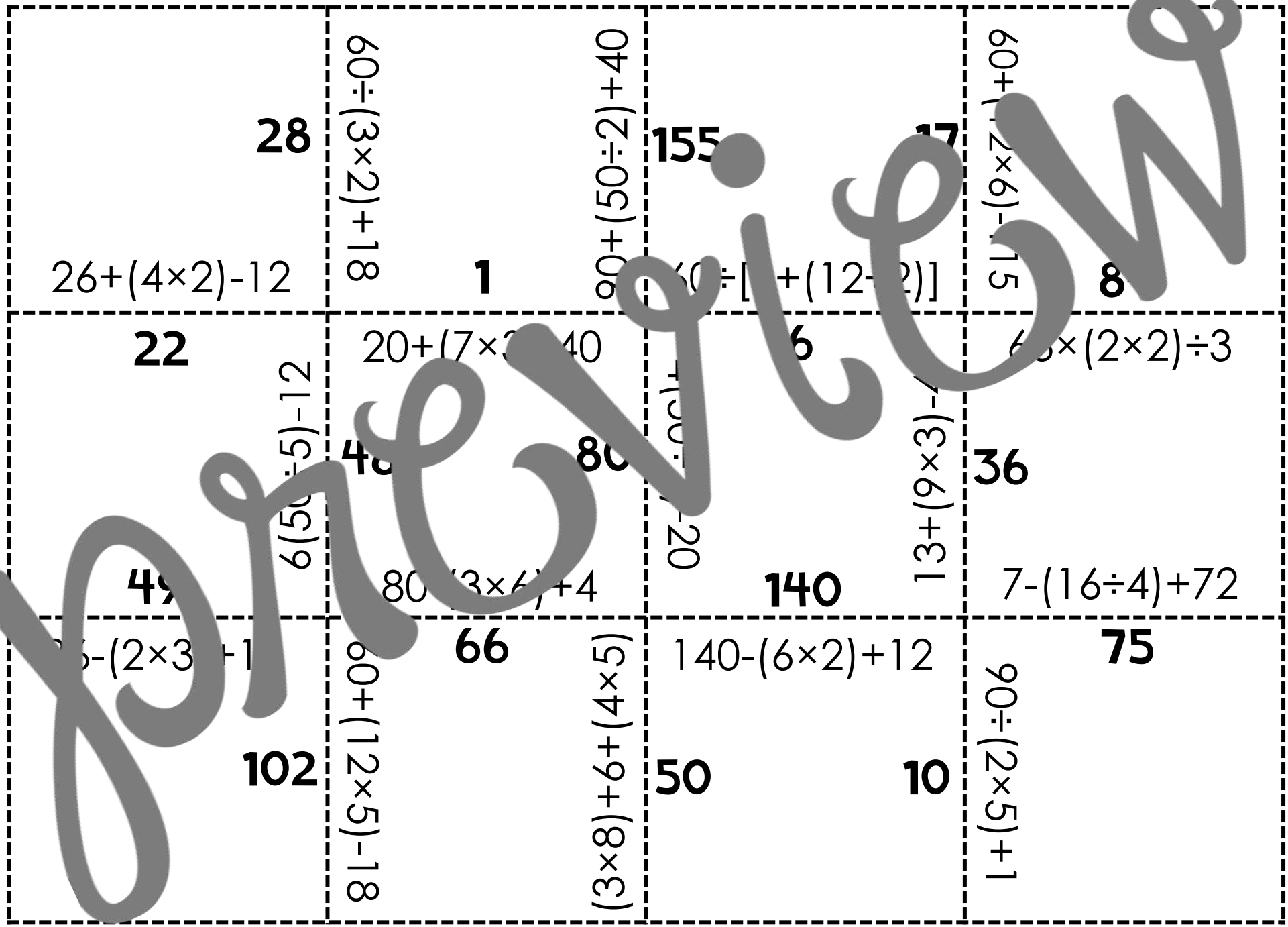
- In this activity students are asked to simplify each equation and match it to its value to complete a puzzle.
- This activity can be used in a variety of ways
  - ✓ Small group with teacher guidance
  - ✓ As partner activity for practice
  - ✓ Independently to assess

Materials

Included:
- Puzzle Pieces
- Work Pages
- Answer Key

Not Included:
- Pencil

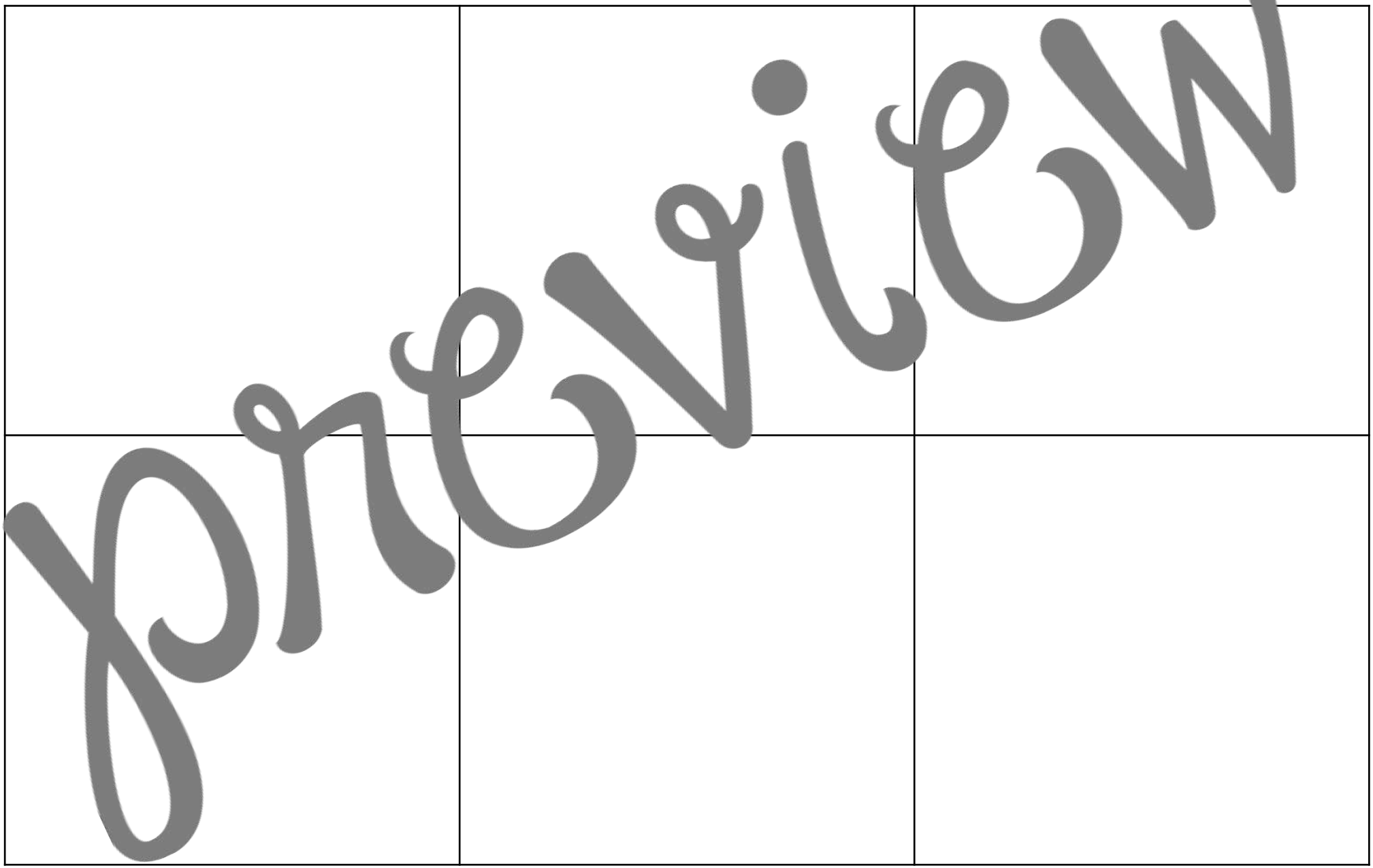
SIMPLIFY PUZZLE



Name _____ #_____ Date_____

SIMPLIFY PUZZLE RESPONSE SHEET 1/3

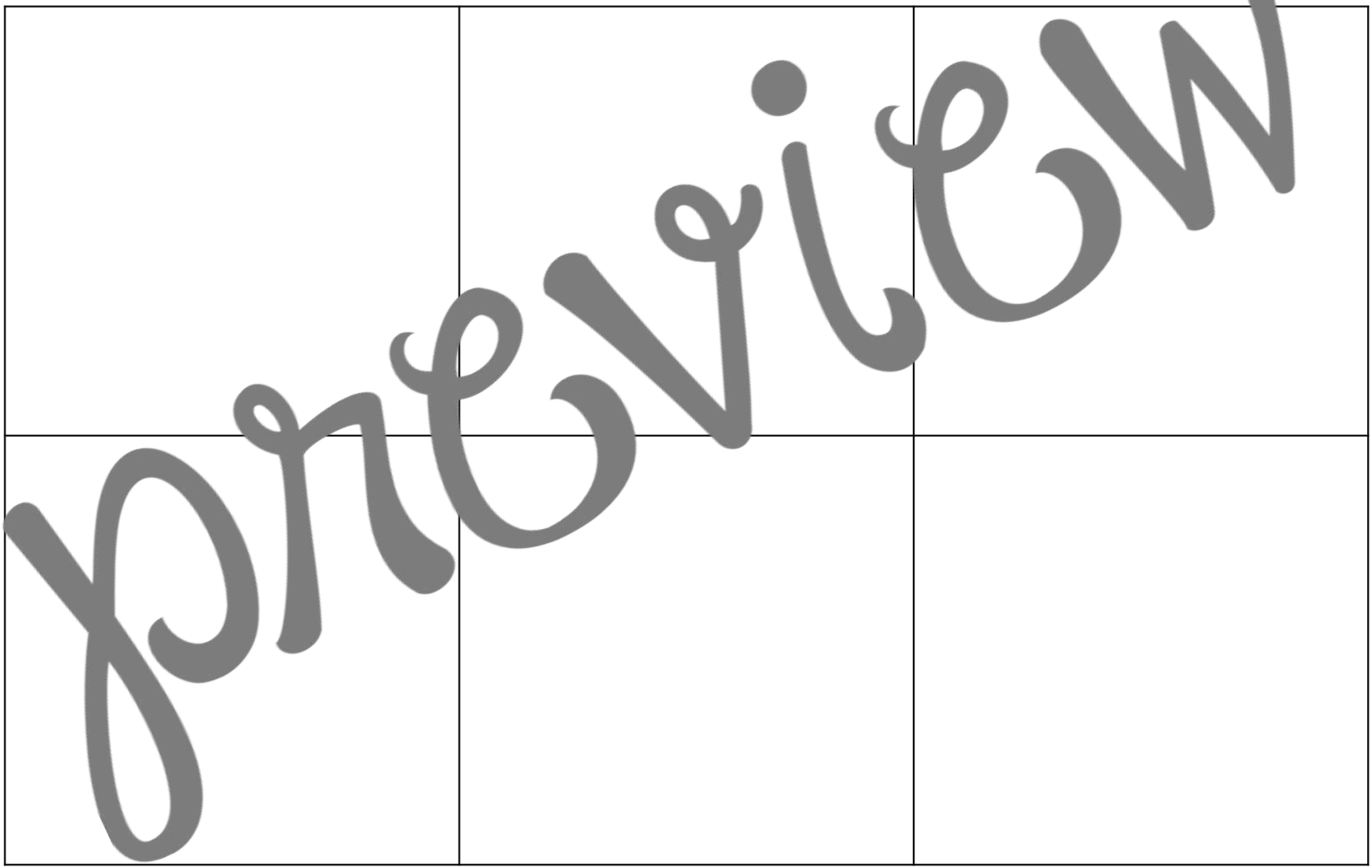
Use the spaces below to show your work for the simplify puzzle.



Name _____ #_____ Date_____

SIMPLIFY PUZZLE RESPONSE SHEET 2/3

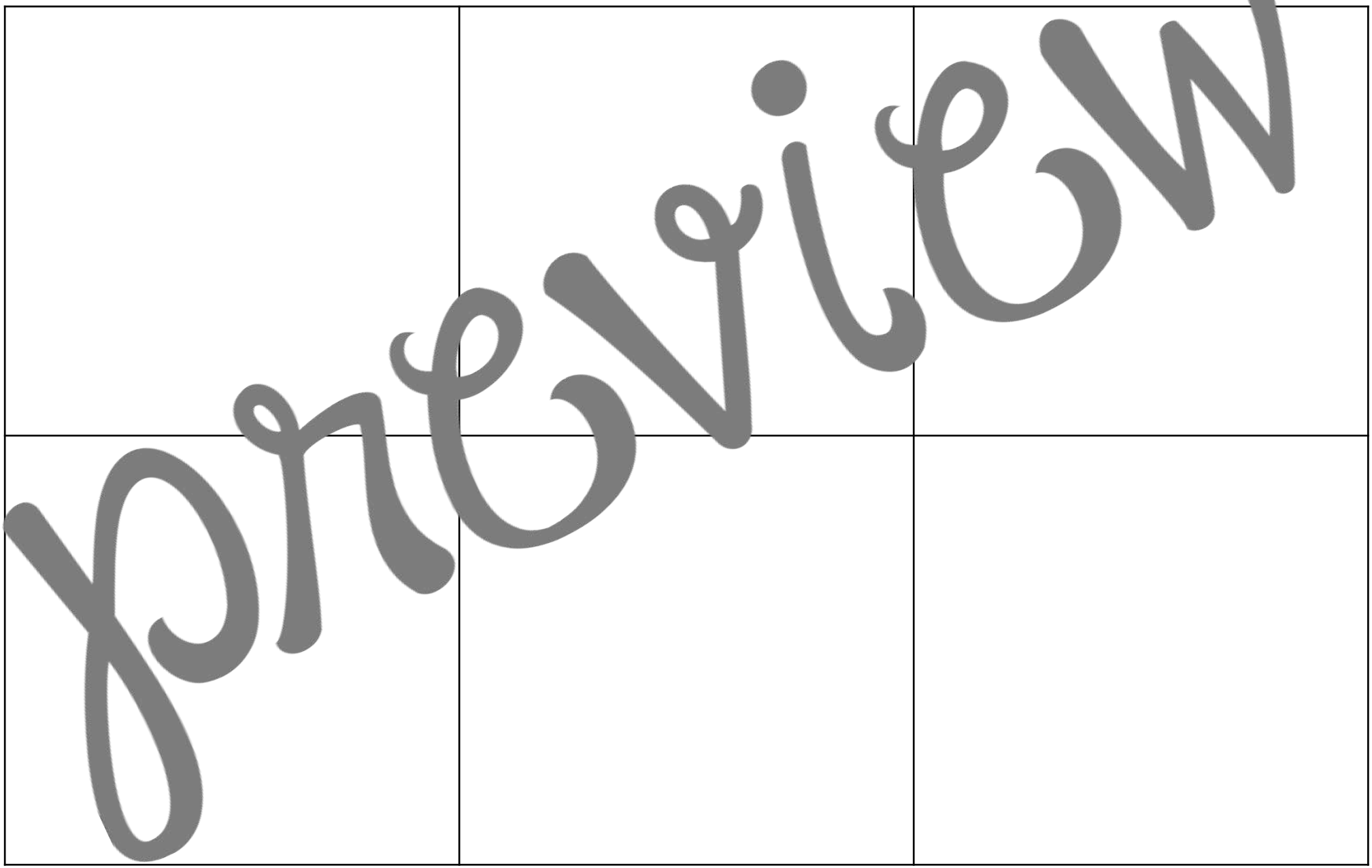
Use the spaces below to show your work for the simplify puzzle.



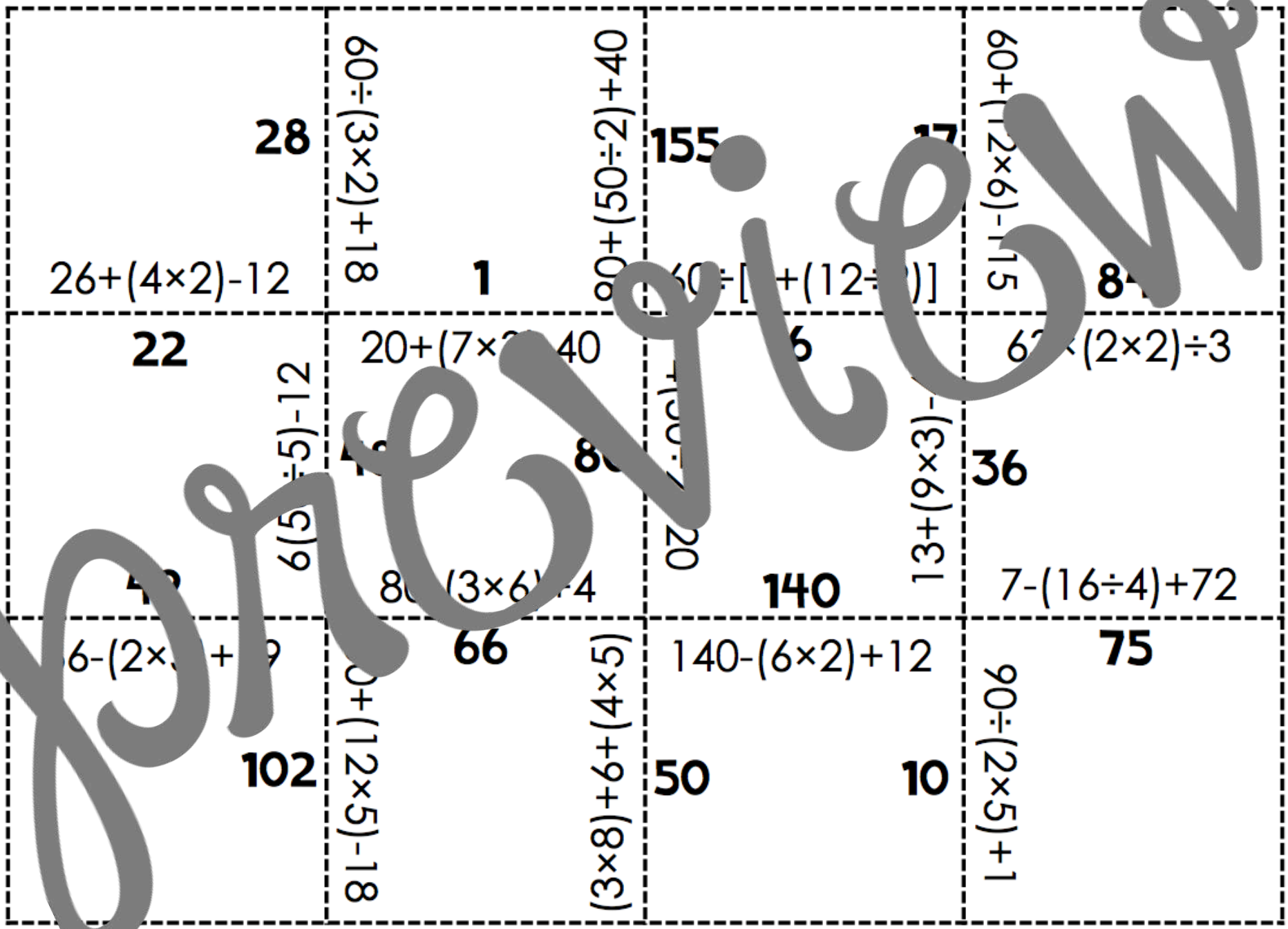
Name _____ #_____ Date_____

SIMPLIFY PUZZLE RESPONSE SHEET 3/3

Use the spaces below to show your work for the simplify puzzle.



SIMPLIFY PUZZLE ANSWER KEY



Name _____ #_____ Date _____

TEST BRIDGE QUESTIONS

1. What is the value of this expression?

$$[40+(7\times4)]\div4$$

a. 47
b. 17
c. 11
d. 45

2. What is the value of this expression?

$$[12\times48\div8]-42$$

a. 9
b. 8
c. 54
d. 45

3. There are a total of 8[illegible] pairs of socks in a box.
- half of the socks are white
- another 12 of the socks are red
- 1 out of 5 of the rest of the socks are blue

Based on the expression, how many of the socks are blue?

$$4(950\div2-125)\div5$$

a. 200
b. 355
c. 45
d. 255

4. The Spurs had scored 90 points by the end of halftime. They scored another 15 points in each of two overtime sessions. They also scored 6 points in free throws. What was the final score?

$$90+(15\times2)+6$$

a. 66 points
b. 113 points
c. 126 points
d. 120 points

TEST BRIDGE ANSWER KEY

1. What is the value of this expression?

$$[40+(7\times4)]\div4$$

a. 47
b. 17
c. 11
d. 45

2. What is the value of this expression?

$$[12\times(48\div6)]-42$$

a. 90
b. 8
c. 54
d. 45

3. There are a total of 950 pairs of socks in a box.

- half of the socks are white
- another 125 of the socks are red
- half of 5 of the rest of the socks are blue

Based on the expression, how many of the socks are blue?

$$4(950\div2-125)\div5$$

a. 200
b. 355
c. 45
d. 255

4. The Spurs had scored 90 point by the end of halftime. They scored another 15 points in each of two overtime sessions. They also scored 6 points in free throws. What was the final score?

$$90+(15\times2)+6$$

a. 66 points
b. 113 points
c. 126 points
d. 120 points

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