

keep scrolling to get
a sneak peek!

Help your Algebra 2 students practice **adding, subtracting, multiplying and dividing functions**. Students will be eager to get the self-checking benefits from this circuit activity!

FUNCTION OPERATIONS

Differentiated Circuit Worksheet

FUNCTION OPERATIONS CIRCUIT

is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions. Record your path below.

6 → 9 → 3 → 7 → 10 → 2 → 5 → 8 →

| | | |
|----------------------------|-----|---|
| $x^2 - 1$ | # 8 | Previous Answer: $-10x^3 + 2x^2 - 3x + 6$ |
| 5 and $g(x) = x^2 - 3$. | | 2. Let $f(x) = 4x$ and $g(x) = x - 1$. Find $(g - f)(x)$. |
| $+(x^2 - 3)$ $- 2x + 2$ | | $(x-1) - (4x)$ $-3x - 1$ |
| er: x^2 | # 9 | Previous Answer: $x^2 + 2x + 2$ |
| + | | 4. Let $f(x) = 3x - 4$ and $g(x) = x$. Find $(f - g)(x)$. |

FUNCTION OPERATIONS CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions. Record your path below.

1 → _____ → _____ → _____ → _____ → _____ → _____

| | | |
|--|---------|---|
| Previous Answer: $3x + 5$ | # _____ | Previous Answer: $x^4 + 2x^3$ |
| 1. Let $f(x) = x^2 + 3x - 1$ and $g(x) = 2x - 5$. Find $(f + g)(x)$. | | 2. Let $f(x) = x + 2$ and $g(x) = x^2$. Find $(g \cdot f)(x)$. |
| Previous Answer: $-x^2 + 5x + 1$ | # _____ | Previous Answer: $x^2 + 5x - 4$ |
| 3. Let $f(x) = x^2 - 1$ and $g(x) = x - 1$. Find $(\frac{f}{g})(x)$. | | 4. Let $f(x) = 2x^2 - x + 1$ and $g(x) = x^2 - 1$. Find $(f - g)(x)$. |



2 versions + answer key included

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Why do you need this?



It's self-checking! Your students will know if they are correct or not.



2 differentiated versions for all students practice this essential math skill.

Function Operations Circuit Worksheet

Name: _____ Date: _____

FUNCTION OPERATIONS CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → _____ → _____ → _____ → _____ → _____

| | | |
|---|---------|--|
| Previous Answer: $x^2 - 1$ | # _____ | Previous |
| 1. Let $f(x) = 2x + 5$ and $g(x) = x^2 - 3$. Find $(f + g)(x)$. | | 2. Let $f(x) = x^2 + 3x - 1$ and $g(x) = 2x - 5$. Find $(f + g)(x)$. |
| Previous Answer: $\frac{x + 2}{3x}$ | # _____ | Previous |
| 3. Let $f(x) = x^2 + 2x$ and $g(x) = 5x$. Find $(f \cdot g)(x)$. | | 4. Let $f(x) = x^2 + 2x$ and $g(x) = 3x + 4$. Find $(g \cdot f)(x)$. |
| Previous Answer: $-3x - 1$ | # _____ | Previous |
| 5. Let $f(x) = 2x^2 - 2$ and $g(x) = x^2 - 1$. Find $(\frac{f}{g})(x)$. | | 6. Let $f(x) = x^2 + 5x - 4$ and $g(x) = x^2 - x + 4$. Find $(f - g)(x)$. |
| Previous Answer: $3x^2 + 10x + 8$ | # _____ | Previous |
| 5. Let $f(x) = x - 4$ and $g(x) = x^2 + 4x + 4$. Find $(\frac{f}{g})(x)$. | | 6. Let $f(x) = x^2 - x + 4$ and $g(x) = x^2 - 9$. Find $(\frac{f}{g})(x)$. |

Composition of Functions Circuit includes:

Challenge: Let $f(x) = x^2 - 4$ and $g(x) = x + 2$. Find $(f \cdot g)(x) + (f - g)(x)$.

How are you feeling about this topic? Circle one:

Helpful Hints: Use these hints to help you solve the problems.

Adding Functions: $(f + g)(x) = f(x) + g(x)$

Subtracting Functions: $(f - g)(x) = f(x) - g(x)$ *watch for sign changes!

Multiplying Functions: $(f \cdot g)(x) = f(x) \cdot g(x)$

Dividing Functions: $(\frac{f}{g})(x) = \frac{f(x)}{g(x)}$ *simplify if possible!

How are you feeling about this topic? Circle one:

- ✓ 10 self-checking problems
- ✓ a detailed answer key
- ✓ a standard version with an extension question
- ✓ a basic version with helpful hints section
- ✓ student self assessment

Function Operations Circuit Worksheet

standards aligned:

CCSS: HSF-BF.A.1.b

TEKs: A1.10.A, A1.10.B, A1.10.C

VA SOLs: EO.A.2.b

Name: **Answer Key** Date: _____

FUNCTION OPERATIONS CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → **4** → **6** → **9** → **3** → **7** → **10** → **2** → **5** → **8** → 1

| | |
|---|---|
| Previous Answer: $3x + 5$ # 8 1. Let $f(x) = x^2 + 3x - 1$ and $g(x) = 2x - 5$. Find $(f + g)(x)$. $(x^2 + 3x - 1) + (2x - 5)$ $\boxed{x^2 + 5x - 6}$ | Previous Answer: $x^4 + 2x^3 + x^2$ # 10 2. Let $f(x) = x + 2$ and $g(x) = 3x + 4$. Find $(g \cdot f)(x)$. $(3x + 4)(x + 2)$ $3x^2 + 6x + 4x + 8$ $\boxed{3x^2 + 10x + 8}$ |
| Previous Answer: $-x^2 + 5x + 1$ # 9 3. Let $f(x) = x^2 - 1$ and $g(x) = x - 1$. Find $(\frac{f}{g})(x)$. $\frac{x^2 - 1}{x - 1}$ $\frac{(x - 1)(x + 1)}{x - 1}$ $\boxed{x + 1}$ | Previous Answer: $x^2 + 5x - 4$ # 1 4. Let $f(x) = 2x^2 - x + 4$ and $g(x) = x^2 + x$. Find $(f - g)(x)$. $(2x^2 - x + 4) - (x^2 + x)$ $2x^2 - x + 4 - x^2 - x$ $\boxed{x^2 - 2x + 4}$ |
| Previous Answer: $3x^2 + 10x + 8$ # 10 | Previous Answer: $x^2 + 5x - 4$ # 1 |

how this circuit resource works

Then search for their answer on the worksheet. Once the answer is found, students complete the problem below it.

Students can track their path at the top.

Name: _____ Date: _____

FUNCTION OPERATIONS CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → _____ → _____ → _____ → _____ → _____ → _____ → _____ → _____ → 1

| | |
|--|---|
| Previous Answer: $x^2 - 1$ # _____ | Previous Answer: $-10x^3 + 2x^2 - 3x + 6$ # _____ |
| 1. Let $f(x) = 2x + 5$ and $g(x) = x^2 - 3$. Find $(f + g)(x)$. | 2. Let $f(x) = 4x$ and $g(x) = x - 1$. Find $(g - f)(x)$. |
| Previous Answer: $\frac{x+2}{3x}$ # _____ | Previous Answer: $x^2 + 2x + 2$ # _____ |
| 3. Let $f(x) = x^2 + 2x$ and $g(x) = 5x$. Find $(f \cdot g)(x)$. | 4. Let $f(x) = 3x - 4$ and $g(x) = x + 6$. Find $(f - g)(x)$. |

Students start with the first question.

The last question they answer should lead back to problem #1 to "close" the circuit.

how to use this resource

Name: **Answer Key** _____ Date: _____

FUNCTION OPERATIONS CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → **4** → **6** → **9** → **3** → **7** → **10** → **2** → **5** → **8** → 1

| | |
|--|---|
| Previous Answer: $3x + 5$ # 8 | Previous Answer: $x^4 + 2x^3 + x^2$ # 10 |
| 1. Let $f(x) = x^2 + 3x - 1$ and $g(x) = 2x - 5$. Find $(f + g)(x)$. | 2. Let $f(x) = x + 2$ and $g(x) = 3x + 4$. |

FUNCTION OPERATIONS CIRCUIT

| | |
|--|--|
| Previous Answer: $x + 1$ # 3 | Previous Answer: $x^3 - 12x - 16$ # 5 |
| 7. Let $f(x) = x^2 + 3$ and $g(x) = 2x - 1$. Find $(g + f)(x)$. | 8. Let $f(x) = 3x^2 + 11x + 10$ and $g(x) = x + 2$. Find $(\frac{f}{g})(x)$. |
| Previous Answer: $-x^2 + 5x + 1$ | Previous Answer: $x^2 + 2x + 2$ # 7 |
| 3. Let $f(x) = x^2 - 1$ and $g(x) = x$. Find $(\frac{f}{g})(x)$. | 9. Let $f(x) = x^2 - 4x + 4$ and $g(x) = x + 5$. Find $(g - f)(x)$. |
| Previous Answer: $3x^2 + 10x + 4$ | 10. Let $f(x) = 2x - 3$ and $g(x) = x^2 + x$. Find $(g \cdot f)(x)$. |
| 5. Let $f(x) = x - 4$ and $g(x) = x^2$. Find $(f \cdot g)(x)$. | |

This is a great activity to use when reviewing how to add, subtract, multiply and divide functions.

It can be used right after teaching the concept or as homework.

This is also a **substitute-friendly** assignment!

You may also enjoy...

FUNCTION OPERATIONS

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Self-Checking

OPERATIONS & COMPOSITION OF FUNCTIONS

Algebra 2 Guided Notes

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Answer key included

SYNTHETIC DIVISION

Differentiated Circuit worksheet

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2 versions + Answer key included

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check it out!

Answer Key
Name: _____ Date: _____
ADDING & SUBTRACTING RATIONAL EXPRESSIONS
Directions: Add or subtract the rational expressions. Show your work.

Solving Systems of Equations
Date: _____
Solve systems of equations using substitution or elimination. Check your solution.
2. $2x - 6y = -18$
 $x = 3y - 9$
 $2(3y - 9) - 6y = -18$
 $6y - 18 - 6y = -18$
 $-18 = -18$
infinitely many solutions

ANSWER KEY
Solving Systems of Equations
Date: _____
Solve systems of equations using substitution or elimination. Check your solution.
 $2. 2x - 6y = -18$
 $x = 3y - 9$
 $y = 2 + 5$
 $y = 7$
 $(2, 7)$

Rational Expression Operations - Addition & Subtraction
Directions: Answer each question and type the question number with the matching answer in the answer column to the right.

| # | Question | Answer | Type the matching question numbers here |
|---|--|-----------------------------|---|
| 1 | $\frac{5}{x} + \frac{3}{x+1}$ | $\frac{2x+1}{x+2}$ | |
| 2 | $\frac{2}{x+4} - \frac{x^2}{x^2-16}$ | $-\frac{1}{x^2-1}$ | |
| 3 | $\frac{x+2}{x^2+4x+4} + \frac{2x}{x+2}$ | $\frac{2x^2+2x+5}{x^2+x-2}$ | |
| 4 | $\frac{x}{x-2} + \frac{3}{x-1}$ | $-\frac{x^2+2x-8}{x^2-16}$ | |
| 5 | $\frac{x}{4x+8} - \frac{1}{x^2+2x}$ | $\frac{8x+5}{x^2+1}$ | |
| 6 | $\frac{x+2}{x-1} + \frac{x-1}{x+2}$ | $\frac{x^2-3x+7}{x^2-4}$ | |
| 7 | $\frac{2x+1}{x^2-4} + \frac{x-3}{x+2}$ | $\frac{x^2+2x-6}{x^2-3x+2}$ | |
| 8 | $\frac{x^2+2x}{x^2-1} - \frac{x+1}{x-1}$ | $\frac{x-2}{4x}$ | |

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hey there!

My name is Malia and I'm passionate about making learning and practicing math fun. I love creating engaging math resources for my students and I hope your students enjoy this activity too!

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