Function Feud

In this activity, participants will use input and output data to identify a function or a rule.

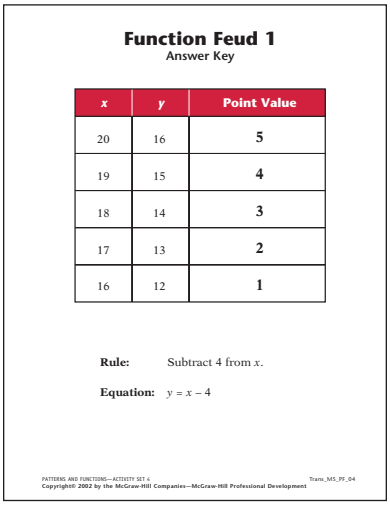
MATERIALS

- *Transparencies/Pages: Function Feud Work Sheets 1–4*
- *Transparencies/Pages: Function Feud 1–15 Answer Keys*
- *chart paper*

TIME: 20 minutes

TEACHING TIP: For less experienced teachers, use Functions 1–10 for the game, all played according to the original rules. For more experienced teachers, use Functions 6–15, pausing after Function 10 to announce "Round 2" and the change in format. This is described in the Optional Round 2 section.

Answer Keys for Round 2 must be prepared in advance. Cut sticky notes to cover the "answers" that are shown in a larger, bold font on *Transparencies: Function Feud 11–15 Answer Keys*.



Function Feud 1
Answer Key

x	*y*	Point Value
20	16	**5**
19	15	**4**
18	14	**3**
17	13	**2**
16	12	**1**

Rule: Subtract 4 from x.

Equation: $y = x - 4$

PATTERNS AND FUNCTIONS—ACTIVITY SET 4 Trans_MS_PF_04

Transparency: Function Feud 1 Answer Key

INTRODUCE

- Display *Transparency: Function Feud 1 Answer Key*, with all rows except the first covered. (Do not have participants open to their matching pages.)
- Explain to participants that in this activity the group will play Function Feud. Participants will form two teams that will look at data in a function table and guess the rule that has been applied.

- Explain that the rules will become more complex as the game proceeds.
- Point out that the first input/output is worth 5 points (when only this pair of numbers is given and the rule is guessed correctly).
- Ask the teams for the rule. (They will probably get this one on the first try.) Indicate that a team that does this (guesses correctly after the first pair of numbers) gets 5 points, but that if you have to reveal the second pair of input/output numbers (do so), then a guess is worth 4 points, and so on.
- Fill in the rule when participants guess correctly.
- Reveal the rest of the table to illustrate the point values.
- Explain that you will alternate between the teams for each guess and that you will alternate first guesses between the teams, as well.
- Ask the winning team to translate the input/output rule into an equation. Fill in the blank when they guess correctly.
- Explain that a winning team will earn 2 bonus points for giving the correct equation on one attempt.
- Alternate between the teams for each guess until the correct equation is stated.

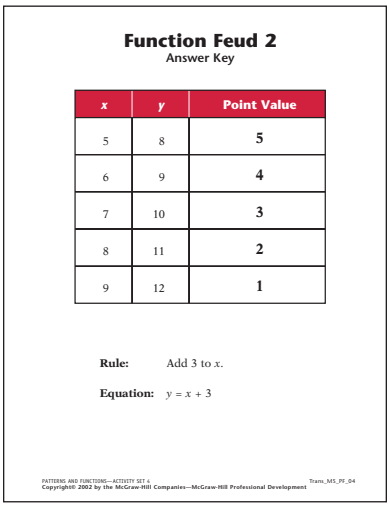
DISCUSS AND DO

- Ask participants to form two teams.
- Have participants take out their *Function Feud Work Sheets 1–4*.
- Explain that they may use these worksheets to record data or do computation during the activity.

TEACHING TIP: Ask a volunteer to keep score on chart paper.

- Have each team select a spokesperson. This person will give the team's guess for each rule after consulting with the team.
- Flip a coin or roll a number cube to select the starting team. (The starting guess must alternate between the teams for each round.)
- Display the first function table for the game (*Transparency: Function Feud 2 Answer Key*).
- Reveal the first row of input/output data, (the *x*-value and the *y*-value) and permit the starting team to make a guess about the rule.
- Allow 10–15 seconds for team discussion; then request an answer. Whatever time limit you allow should be applied consistently.
- Award points, if appropriate, or a turn to the other team and reveal the second row of input/output.
- Repeat until points are awarded or until you reach the end of the table and reveal the rule.
- Repeat with the next function table (starting with the other team). Continue with each table in succession. The order in which the tables are presented is important because the rules get successively more difficult.
- Display the equations in the order shown below:

  1. $y = x - 4$ (used to model)
  2. $y = x + 3$
  3. $y = x - 7$
  4. $y = 4x - 3$
  5. $y = 3x$



Function Feud 2
Answer Key

x	*y*	Point Value
5	8	**5**
6	9	**4**
7	10	**3**
8	11	**2**
9	12	**1**

Rule: Add 3 to *x*.

Equation: $y = x + 3$

Transparency: Function Feud 2 Answer Key

6. $y = x^2 - 1$
7. $y = (x \div 2) + 1$
8. $y = x^2 + 3$
9. $y = 20 \div x$
10. $y = \frac{1}{2}x + 1$

- Announce the winning team after the five rounds and pronounce the team completely *functional*.

OPTIONAL ROUND 2

- Total each team's points after their first five functions and congratulate the participants on their successes in Round 1.
- Explain that the game play will change in Round 2.
- Go over the rules for Round 2.
  - Teams will simultaneously view a partially completed function table.
  - Teams must determine the rule, translate the rule into an equation, and solve for an *n*th term in the table.
  - Both teams will work simultaneously on the problem.
  - The first team to announce that it has solved the problem (raise hands and shout "Finished!") will be given 15 seconds to state the rule, state the equation, and name the *n*th term. (All pencils and computation must stop when the team announces it is ready.)
  - Award 2 points for the rule, 2 points for the equation, and 6 points for the *n*th term.

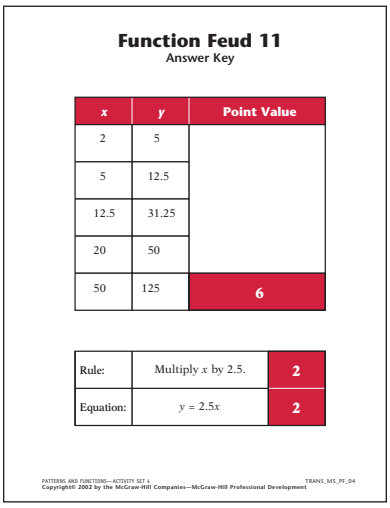
- If the first team supplies an incorrect answer to any of the elements, play is turned over to the other team which then has the opportunity to supply the remaining answers for credit.

  Note: The first team gets credit for any correct answers given before the turn over.

- Remind participants that the spokesperson is responsible for stating the answers.

TEACHING TIP: During game play, display the transparencies for Functions 11–14 in the order shown below:

- $y = 2.5x$ (or $y = 2\frac{1}{2}x$)
- $y = \frac{1}{4}x + 5$ (or $y = 0.25x + 5$)
- $y = 2x - 6$ (Negative integers appear in this table.)
- $y = {}^{-}x + 5$ (Negative integers appear in this table.)



Function Feud 11
Answer Key

x	y	Point Value
2	5	
5	12.5	
12.5	31.25	
20	50	
50	125	6

Rule:	Multiply x by 2.5.	2
Equation:	$y = 2.5x$	2

PATTERNS AND FUNCTIONS—ACTIVITY SET 4 TRANS_MS_PF_04

Transparency: Function Feud 11 Answer Key

- Display the first Round 2 problem, *Transparency: Function Feud 11 Answer Key*, with the answers covered: y-value for the 50th term, rule, and equation.
- Begin play.
- Award appropriate points after each function.
- Display the last function with the equation revealed and all y-values covered. $y = (3x - 1)^2$
- Announce the countdown to the finish.
- Alternate between the teams for answers to each y-value. (A missed answer is passed to the opposing team for one chance to answer it. This team still gets first chance at its own question.)
- Announce the winning team but pronounce the entire group *completely functional*.

CONCLUDE

- Suggest to participants that they actually use some of these input/output methods in daily activities without thinking about them formally. For example:
  - Participants change dollars for quarters—that rule is *multiply by 4*.
  - Travelers use conversion rates for all types of currency exchange.
  - Participants apply a division rule every time they buy $2.00 worth of produce or candy.
  - Ask participants the number of hours of viewing time on their latest video rental and point out that the rule is *divide the minutes by 60 to get hours*.
- Suggest that using an activity related to real life can sometimes be an appropriate assessment tool.

End of Function Feud