LESSON MAKER PRO

Function Face-Off

Compare outputs from rules, tables, and points.

HIGH SCHOOL · HSF-IF.C

CCSS.Math.Content.HSF-IF.C "Analyze functions using different representations"

NAME _____ DATE _____

COMPARE AT ONE INPUT

Use the same input for both functions. Find both outputs, then compare them or subtract to find the difference.

WORKED EXAMPLE

A: a(x)=13x+17. B: b(11)=158. At x=11, which function has the larger output?

1. a(11)=13(11)+17
2. a(11)=143+17=160
3. 160-158=2, so A is higher.

Answer: Function A, by 2.

PRACTICE 5 problems

1 P: p(x)=3x+3. Q: q(3)=15. At x=3, which output is larger?

ANSWER _____

2 R: r(6)=14. S: s(x)=x+9. At x=6, which output is larger?

ANSWER _____

3 Function U includes the point (8,10). V: v(x)=x+6. At x=8, which output is larger?

ANSWER _____

4 M: m(x)=x+6. N: n(9)=15. At x=9, compare the outputs.

ANSWER _____

5 J: j(x)=x+12. Function K includes the point (9,24). At x=9, which output is larger?

ANSWER _____

APPLY IT Show your work

1 Two game clubs track reward points after h volunteer hours. Club A has A(h)=4h+12. Club B has 27 points at 3 hours and 39 points at 6 hours. At 6 hours, which club has more points, and by how many?

WORK SPACE

ANSWER _____

2 You sell items through two resale apps. App A pays E(s)=9s+6 dollars after s sales. App B pays $25 after 2 sales and $43 after 4 sales. After 4 sales, which app pays more, and by how much?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Both functions are linear. A: a(x)=3x+6. Function B has the table x: 0, 3, 6 and b(x): 9, 15, 21. At what x are the outputs equal? Explain which function is greater for inputs less than and greater than that value.

WORK SPACE AND ANSWER

ANSWER KEY

Function Face-Off

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	P: p(x)=3x+3. Q: q(3)=15. At x=3, which output is larger?	**Function Q, by 3.**
2	R: r(6)=14. S: s(x)=x+9. At x=6, which output is larger?	**Function S, by 1.**
3	Function U includes the point (8,10). V: v(x)=x+6. At x=8, which output is larger?	**Function V, by 4.**
4	M: m(x)=x+6. N: n(9)=15. At x=9, compare the outputs.	**The outputs are equal.**
5	J: j(x)=x+12. Function K includes the point (9,24). At x=9, which output is larger?	**Function K, by 3.**

PART 2 · APPLY IT

1. **Club B has 3 more points.** A(6)=4(6)+12=36. Club B has 39 points, so 39-36=3.
2. **App B pays $1 more.** E(4)=9(4)+6=42. App B pays $43, so the difference is $1.

CHALLENGE

The outputs are equal at x=3. Function B is greater when x<3, and Function A is greater when x>3.

Accept equivalent comparison statements, such as "S exceeds R by 1." For the challenge, accept a correct explanation based on Function A increasing 3 per input unit while Function B increases 2 per input unit.