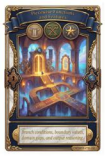
Piecewise Functions and Features

Branch conditions, boundary values, domain gaps, and output reasoning.

Name _____ Date _____

32 main · 2-up grid · 11 pages · visible side quests

Completion Reward



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1. A function is defined by u(x) = x + 2 when x < 1 and u(x) = 3x when x >= 1. What is the domain?

A. All real numbers
B. x < 1 only
C. x >= 1 only
D. All integers

1.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

1.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

1.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

1.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

1.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

2. If f(x) = { x + 2 when x < 0; 3x when x >= 0 }, which rule is used for x = -4?

A. 3x
B. x + 2
C. Both rules
D. No rule

2.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

2.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

2.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

2.4. A piecewise function uses different rules because:

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B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

2.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

3. Why does a piecewise function have more than one formula?

A. Different input regions follow different rules.
B. Every function must have at least two formulas.
C. The graph would be invalid otherwise.
D. It lets one input use whichever rule gives the nicer output.

3.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

3.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

3.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

3.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

3.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

4. A function is defined by h(x) = x + 1 when x <= 2 and h(x) = 5 - x when x > 2. Which expression should be used to find h(2)?

A. 5 - x
B. Both expressions
C. x + 1
D. Neither expression

4.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

4.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

4.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

4.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

4.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

5. What is the first thing you should do before evaluating a piecewise function at a specific input?

A. Add the formulas together.
B. Find the inverse function.
C. Set the formulas equal to each other.
D. Check which condition the input satisfies.

5.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

5.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

5.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

5.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

5.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

6. A student evaluates f(-2) using the branch f(x) = x^2 when x >= 0. What is the mistake?

A. They used the branch for nonnegative inputs even though -2 is negative.
B. They should square every input no matter what.
C. They should add the branch outputs together.
D. They should ignore the condition and use both branches.

6.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

6.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

6.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

6.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

6.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

7. A function is defined by f(x) = 2x + 1 when x < 0 and f(x) = x^2 when x >= 0. Find f(-3). Answer with a number.

7.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

7.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

7.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

7.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

7.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

8. A function is defined by g(x) = 3x - 2 when x < 0 and g(x) = x + 4 when x >= 0. Find g(0). Answer with a number.

8.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

8.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

8.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

8.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

8.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

9. A function is defined by q(x) = x + 2 when x < 0 and q(x) = 3 - x when x >= 0. What is the y-intercept?

A. (0, 2)
B. (3, 0)
C. (0, 3)
D. (0, -3)

9.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

9.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

9.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

9.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

9.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

10. A function is defined by w(x) = x + 5 when x < 0 and w(x) = x - 1 when x >= 0. Which is larger: w(-2) or w(3)?

A. w(3)
B. They are equal
C. Not enough information
D. w(-2)

10.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

10.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

10.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

10.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

10.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

11. A function is defined by v(x) = x - 1 when x < 1 and v(x) = 2x when x > 1. Which input is not included in the domain?

A. 0
B. 1
C. -4
D. 3

11.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

11.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

11.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

11.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

11.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

12. If x = 0, which condition is true?

A. x < 0
B. x > 2
C. x < -3
D. x >= 0

12.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

12.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

12.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

12.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

12.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

13. Which piecewise rule fails to define a function because one input could get two outputs?

A. f(x) = x when x >= 0 and f(x) = x + 1 when x <= 0
B. f(x) = x when x < 0 and f(x) = x + 1 when x >= 0
C. f(x) = 2x when x < 3 and f(x) = 5 when x >= 3
D. f(x) = 1 when x < -2 and f(x) = 4 when x >= -2

13.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

13.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

13.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

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A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

13.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

14. If g(x) = { 2x - 1 when x <= 3; x + 4 when x > 3 }, which expression gives g(3)?

A. 3 + 4
B. Both branches
C. 2(3) - 1
D. No branch

14.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

14.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

14.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

14.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

14.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

15. A parking lot costs $8 for up to 2 hours and $8 plus $3 for each hour after 2. Which idea explains why a piecewise rule is needed?

A. The pricing rule changes after 2 hours.
B. The cost is always linear with one slope.
C. Parking costs cannot use functions.
D. The rule only depends on the hour, not time region.

15.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

15.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

15.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

15.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

15.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

16. Which piecewise rule matches: multiply negatives by 2, but add 1 to nonnegative numbers?

A. f(x) = 2x when x <= 0 and f(x) = x - 1 when x > 0
B. f(x) = 2x when x < 0 and f(x) = x + 1 when x >= 0
C. f(x) = x + 1 when x < 0 and f(x) = 2x when x >= 0
D. f(x) = 2x + 1 for every x

16.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

16.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

16.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

16.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

16.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

17. A function is defined by r(x) = x + 4 when x < 0 and r(x) = x + 10 when x >= 0. Which number cannot be an output?

A. 7
B. 3
C. 10
D. -2

17.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

17.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

17.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

17.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

17.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

18. A ride costs $5 for trips up to 2 miles and $5 plus $2 for each mile beyond 2 miles for longer trips. Which piecewise rule matches this?

A. C(x) = 5 when x <= 2 and C(x) = 5 + 2(x - 2) when x > 2
B. C(x) = 5x when x <= 2 and C(x) = 2x when x > 2
C. C(x) = 5 + 2x for all x
D. C(x) = 2(x - 2) when x <= 2 and C(x) = 5 when x > 2

18.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

18.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

18.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

18.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

18.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

19. What is the first step when finding p(-1) for a piecewise function?

A. Check which condition -1 satisfies
B. Use every branch and average the answers
C. Always use the first branch
D. Simplify both formulas before looking at the input

19.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

19.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

19.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

19.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

19.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

20. A student uses the rule y = 2x + 1 for x = 2, but the piecewise definition says y = 2x + 1 when x < 2 and y = x - 3 when x >= 2. What is the mistake?

A. They used the branch that excludes x = 2.
B. They should use both branches and average the answers.
C. They should always use the first branch at boundary values.
D. They should change x = 2 into x = 1.99 first.

20.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

20.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

20.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

20.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

20.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

21. A student says f(-2) = -6 for f(x) = { x + 2 when x < 0; 3x when x >= 0 }. What is the mistake?

A. They used the wrong branch for a negative input.
B. They should always use the larger formula.
C. They should plug in 2 instead of -2.
D. They forgot to square the input.

21.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

21.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

21.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

21.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

21.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

22. A function is defined by p(x) = 4 - x when x < 1 and p(x) = 2x when x >= 1. Find p(3). Answer with a number.

22.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

22.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

22.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

22.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

22.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

23. Let f(x) = { x + 2 when x < 0; 3x when x >= 0 }. Find f(-4). Answer with a number.

23.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

23.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

23.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

23.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

23.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

24. Let f(x) = { x + 2 when x < 0; 3x when x >= 0 }. Find f(5). Answer with a number.

24.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

24.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

24.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

24.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

24.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

25. Let g(x) = { 2x - 1 when x <= 3; x + 4 when x > 3 }. Find g(3). Answer with a number.

25.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

25.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

25.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

25.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

25.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

26. Let h(x) = { 4 when x < 2; x + 1 when x >= 2 }. Find h(6). Answer with a number.

26.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

26.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

26.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

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A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

26.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

27. Let h(x) = { 4 when x < 2; x + 1 when x >= 2 }. Find h(1). Answer with a number.

27.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

27.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

27.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

27.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

27.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

28. Let p(x) = { -x when x < 0; x when x >= 0 }. Find p(-7). Answer with a number.

28.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

28.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

28.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

28.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

28.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

29. Let p(x) = { -x when x < 0; x when x >= 0 }. Find p(9). Answer with a number.

29.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

29.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

29.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

29.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

29.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

30. A fee is f(x) = { 8 when x <= 2; 8 + 3(x - 2) when x > 2 }. Find f(5). Answer with a number.

30.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

30.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

30.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

30.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

30.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

31. A function is defined by t(x) = x + 3 when x < 0 and t(x) = 2x - 1 when x >= 0. Find t(4) - t(-1). Answer with a number.

31.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

31.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

31.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

31.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

31.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2

32. Which student correctly finds q(0) for q(x) = { x - 1 when x < 0; 2x + 5 when x >= 0 }?

A. Student A: 0 satisfies x >= 0, so q(0) = 2(0) + 5 = 5.
B. Student B: 0 is close to negative, so q(0) = -1.
C. Student C: Use both branches and add them.
D. Student D: q(0) is undefined because 0 is on the boundary.

32.1. What does |x| represent?

A. The distance of x from 0
B. Always a negative number
C. The opposite of x
D. Only the positive values of x

32.2. What is |-7|?

A. -7
B. 7
C. 0
D. 14

32.3. If |x| = 5, which could be x?

A. 5 only
B. -5 only
C. 5 or -5
D. 0 only

32.4. A piecewise function uses different rules because:

A. One formula cannot describe every interval
B. It always has no graph
C. Every piece must be linear
D. It only works for negative x

32.5. If f(x) = { x + 1 when x < 0, 2x when x >= 0 }, what is f(3)?

A. 4
B. 6
C. 3
D. 2