Number Sense, Variables, and Equality Foundations

Signed-number meaning, variables, verbal-to-symbol translation, and the earliest equation ideas.

Name _____ Date _____

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

Completion Reward

Shown here as a small pack artifact, not a preview destination.

1. Which number is greater?

A. -5
B. They are equal
C. 5
D. You cannot compare them

1.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

1.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

1.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

1.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

1.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

2. What is the opposite of -8?

A. 8
B. -8
C. 0
D. -16

2.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

2.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

2.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

2.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

2.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

3. In algebra, what does a variable usually represent?

A. A special symbol with no numerical meaning
B. A word shortcut only
C. Always a negative number
D. A number whose value can vary or is not yet known

3.1. In the expression x + 9, what does x represent?

A. a fixed answer already known
B. an unknown or changeable number
C. always the largest number
D. only a negative value

3.2. If a = 4, what is a + 7?

A. 3
B. 11
C. 28
D. 47

3.3. If n = 12, what does 3n mean?

A. 3 + 12
B. 3 x 12
C. 12 - 3
D. 12 / 3

3.4. If b = 5, what is 2b - 1?

A. 4
B. 9
C. 10
D. 11

3.5. If t stands for time in minutes, then t = 8 means:

A. 8 minutes
B. 8 dollars
C. the answer is always 8
D. the slope is 8

4. What does the equation 8 = 3 + 5 tell you?

A. The left side is bigger
B. The right side is a guess
C. Both sides name the same value
D. The equation is false

4.1. What does the equal sign tell you?

A. the left side should be larger
B. both sides name the same value
C. you should add both sides
D. the answer comes next

4.2. If you subtract 5 from one side of an equation, what must happen to the other side?

A. also subtract 5
B. add 5
C. multiply by 5
D. nothing

4.3. Why can you add the same number to both sides of an equation?

A. because equal values stay equal under the same addition
B. because addition always makes the answer correct
C. because variables disappear
D. because the bigger side catches up

4.4. A balanced scale is a good model for an equation because:

A. it shows one side winning
B. it shows both sides carrying the same value
C. it has no variables
D. it only works for subtraction

4.5. Which statement is an equation?

A. 3x + 4
B. x > 7
C. 2a - 1 = 9
D. 4y

5. Which statement is true?

A. -5 > -2
B. -2 > -5
C. -2 = -5
D. You cannot compare them

5.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

5.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

5.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

5.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

5.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

6. What does it mean to evaluate 5n - 1 when n = 8?

A. Add n and 8 together first
B. Change 5n into 58
C. Solve for n instead of substituting
D. Replace n with 8 and simplify

6.1. In the expression x + 9, what does x represent?

A. a fixed answer already known
B. an unknown or changeable number
C. always the largest number
D. only a negative value

6.2. If a = 4, what is a + 7?

A. 3
B. 11
C. 28
D. 47

6.3. If n = 12, what does 3n mean?

A. 3 + 12
B. 3 x 12
C. 12 - 3
D. 12 / 3

6.4. If b = 5, what is 2b - 1?

A. 4
B. 9
C. 10
D. 11

6.5. If t stands for time in minutes, then t = 8 means:

A. 8 minutes
B. 8 dollars
C. the answer is always 8
D. the slope is 8

7. In 5x + 2, which number is the coefficient of x?

A. 2
B. 5
C. 7
D. x

7.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

7.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

7.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

7.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

7.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

8. Which one is an equation?

A. 3x + 2 = 11
B. 3x + 2
C. x - 5
D. 7y

8.1. What does the equal sign tell you?

A. the left side should be larger
B. both sides name the same value
C. you should add both sides
D. the answer comes next

8.2. If you subtract 5 from one side of an equation, what must happen to the other side?

A. also subtract 5
B. add 5
C. multiply by 5
D. nothing

8.3. Why can you add the same number to both sides of an equation?

A. because equal values stay equal under the same addition
B. because addition always makes the answer correct
C. because variables disappear
D. because the bigger side catches up

8.4. A balanced scale is a good model for an equation because:

A. it shows one side winning
B. it shows both sides carrying the same value
C. it has no variables
D. it only works for subtraction

8.5. Which statement is an equation?

A. 3x + 4
B. x > 7
C. 2a - 1 = 9
D. 4y

9. Which expression means 7 more than n?

A. n + 7
B. 7 - n
C. 7n
D. n - 7

9.1. Which expression means 7 more than x?

A. 7x
B. x - 7
C. x + 7
D. 7 - x

9.2. Which expression means 4 less than y?

A. y - 4
B. 4 - y
C. 4y
D. y + 4

9.3. Which expression means twice a number n?

A. n + 2
B. 2n
C. n / 2
D. 2 - n

9.4. Which equation matches 'A number x plus 6 equals 14'?

A. x - 6 = 14
B. x + 6 = 14
C. 6x = 14
D. x = 20

9.5. Why is it helpful to choose a symbol when translating words into math?

A. it gives the unknown quantity a clear name
B. it makes every answer positive
C. it removes the need for operations
D. it guarantees the equation is linear

10. Which expression means 5 less than x?

A. x - 5
B. 5 - x
C. 5x
D. x + 5

10.1. Which expression means 7 more than x?

A. 7x
B. x - 7
C. x + 7
D. 7 - x

10.2. Which expression means 4 less than y?

A. y - 4
B. 4 - y
C. 4y
D. y + 4

10.3. Which expression means twice a number n?

A. n + 2
B. 2n
C. n / 2
D. 2 - n

10.4. Which equation matches 'A number x plus 6 equals 14'?

A. x - 6 = 14
B. x + 6 = 14
C. 6x = 14
D. x = 20

10.5. Why is it helpful to choose a symbol when translating words into math?

A. it gives the unknown quantity a clear name
B. it makes every answer positive
C. it removes the need for operations
D. it guarantees the equation is linear

11. Which expression means the quotient of y and 4?

A. 4 / y
B. y - 4
C. 4y
D. y / 4

11.1. Which expression means 7 more than x?

A. 7x
B. x - 7
C. x + 7
D. 7 - x

11.2. Which expression means 4 less than y?

A. y - 4
B. 4 - y
C. 4y
D. y + 4

11.3. Which expression means twice a number n?

A. n + 2
B. 2n
C. n / 2
D. 2 - n

11.4. Which equation matches 'A number x plus 6 equals 14'?

A. x - 6 = 14
B. x + 6 = 14
C. 6x = 14
D. x = 20

11.5. Why is it helpful to choose a symbol when translating words into math?

A. it gives the unknown quantity a clear name
B. it makes every answer positive
C. it removes the need for operations
D. it guarantees the equation is linear

12. What is the best next step to solve x + 5 = 12?

A. Add 5 to both sides
B. Subtract 5 from both sides
C. Multiply both sides by 5
D. Divide both sides by 5

12.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

12.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

12.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

12.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

12.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

13. What is the best next step to solve 3x = 18?

A. Subtract 3 from both sides
B. Add 18 to both sides
C. Multiply both sides by 3
D. Divide both sides by 3

13.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

13.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

13.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

13.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

13.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

14. What is the best next step to solve 4x - 2 = 18?

A. Divide both sides by 4
B. Subtract 2 from both sides
C. Multiply both sides by 2
D. Add 2 to both sides

14.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

14.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

14.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

14.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

14.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

15. A student says 2 + 3 x 4 = 20. What is the mistake?

A. They multiplied before adding
B. They should subtract first
C. They added before multiplying
D. There is no mistake

15.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

15.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

15.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

15.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

15.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

16. A student solves x + 6 = 14 by subtracting 6 only from the left side. What is the mistake?

A. They should add 6 to both sides instead.
B. They must do the same operation to both sides to keep the equation balanced.
C. They should multiply both sides by 6 first.
D. They should change x into 6.

16.1. What does the equal sign tell you?

A. the left side should be larger
B. both sides name the same value
C. you should add both sides
D. the answer comes next

16.2. If you subtract 5 from one side of an equation, what must happen to the other side?

A. also subtract 5
B. add 5
C. multiply by 5
D. nothing

16.3. Why can you add the same number to both sides of an equation?

A. because equal values stay equal under the same addition
B. because addition always makes the answer correct
C. because variables disappear
D. because the bigger side catches up

16.4. A balanced scale is a good model for an equation because:

A. it shows one side winning
B. it shows both sides carrying the same value
C. it has no variables
D. it only works for subtraction

16.5. Which statement is an equation?

A. 3x + 4
B. x > 7
C. 2a - 1 = 9
D. 4y

17. Find -3 + 9. Answer with a number.

17.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

17.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

17.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

17.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

17.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

18. Find 6 - (-2). Answer with a number.

18.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

18.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

18.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

18.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

18.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

19. Evaluate 3x + 2 when x = 4. Answer with a number.

19.1. In the expression x + 9, what does x represent?

A. a fixed answer already known
B. an unknown or changeable number
C. always the largest number
D. only a negative value

19.2. If a = 4, what is a + 7?

A. 3
B. 11
C. 28
D. 47

19.3. If n = 12, what does 3n mean?

A. 3 + 12
B. 3 x 12
C. 12 - 3
D. 12 / 3

19.4. If b = 5, what is 2b - 1?

A. 4
B. 9
C. 10
D. 11

19.5. If t stands for time in minutes, then t = 8 means:

A. 8 minutes
B. 8 dollars
C. the answer is always 8
D. the slope is 8

20. Solve x + 5 = 12. Answer in the form x = ...

20.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

20.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

20.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

20.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

20.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

21. Solve 3x = 18. Answer in the form x = ...

21.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

21.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

21.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

21.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

21.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

22. Evaluate 2 + 3 x 4. Answer with a number.

22.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

22.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

22.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

22.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

22.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

23. Find -6 + (-7). Answer with a number.

23.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

23.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

23.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

23.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

23.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

24. Find -4 - 3. Answer with a number.

24.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

24.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

24.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

24.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

24.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

25. Evaluate 2x + 5 when x = -3. Answer with a number.

25.1. In the expression x + 9, what does x represent?

A. a fixed answer already known
B. an unknown or changeable number
C. always the largest number
D. only a negative value

25.2. If a = 4, what is a + 7?

A. 3
B. 11
C. 28
D. 47

25.3. If n = 12, what does 3n mean?

A. 3 + 12
B. 3 x 12
C. 12 - 3
D. 12 / 3

25.4. If b = 5, what is 2b - 1?

A. 4
B. 9
C. 10
D. 11

25.5. If t stands for time in minutes, then t = 8 means:

A. 8 minutes
B. 8 dollars
C. the answer is always 8
D. the slope is 8

26. Solve x - 4 = 9. Answer in the form x = ...

26.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

26.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

26.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

26.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

26.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

27. Solve x / 5 = 3. Answer in the form x = ...

27.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

27.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

27.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

27.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

27.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

28. Evaluate 3(2 + 4) - 5. Answer with a number.

28.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

28.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

28.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

28.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

28.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

29. Evaluate 18 / 3 + 2. Answer with a number.

29.1. Which expression means '5 more than x'?

A. 5x
B. x - 5
C. x + 5
D. 5 - x

29.2. If you add 3 to one side of an equation, what must you do to the other side?

A. Multiply by 3
B. Subtract 3
C. Add 3
D. Do nothing

29.3. If x - 4 = 9, what is x?

A. 5
B. 13
C. -13
D. 36

29.4. In the equation t + 6 = 14, what does t represent?

A. The unknown amount
B. Always the largest number
C. A decimal only
D. The final answer 14

29.5. If a = 3, what is a + 8?

A. 5
B. 11
C. 24
D. 38

30. Solve 3x - 2 = 16. Answer in the form x = ...

30.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

30.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

30.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

30.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

30.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

31. Solve x / 2 + 3 = 9. Answer in the form x = ...

31.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

31.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

31.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

31.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

31.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7

32. Solve 2x + 3 = 11. Answer in the form x = ...

32.1. Solve x + 6 = 13.

A. 7
B. 19
C. 6
D. 1

32.2. Solve y - 5 = 9.

A. 4
B. 14
C. -14
D. 45

32.3. Solve 3m = 21.

A. 7
B. 18
C. 24
D. 63

32.4. For 2x + 3 = 11, what should you undo first?

A. the +3
B. the 2
C. both at once
D. the x

32.5. Solve 2x + 3 = 11.

A. 3
B. 4
C. 5
D. 7