

Introduction to Java

Unit 2. Exercises

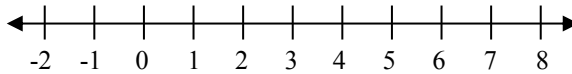
<p>Note: Curly brackets {} are optional if there is only one statement associated with the if (or else) statement.</p> <p>1. If the user enters 82, what is displayed?</p> <p>2. If the user enters 2, what is displayed?</p>	<pre>Scanner get = new Scanner(System.in); System.out.print("Enter a number: "); int x = get.nextInt(); if (x < 7) System.out.println("Good"); else System.out.println("Bad"); if (x > 0) System.out.println("Ok");</pre>
<p>3. If the user enters 10, what is displayed?</p> <p>4. If the user enters 12, what is displayed?</p>	<pre>Scanner get = new Scanner(System.in); System.out.print("Enter a number: "); int x = get.nextInt(); System.out.println("AA"); if (x <= 11) { System.out.println("BB"); } System.out.println("CC");</pre>
<p>5. If the user enters 10, what is displayed?</p> <p>6. If the user enters 4, what is displayed?</p> <p>7. If the user enters 2, what is displayed?</p>	<pre>Scanner get = new Scanner(System.in); System.out.print("Enter a number: "); int x = get.nextInt(); if (x != 10) x = x + 5; if (x > 7) x = x + 20; else x = x + 30; System.out.println(x);</pre>
<p>8. If x has an initial value of 33, what is its final value?</p> <p>9. If x has an initial value of 62, what is its final value?</p>	<pre>// x is declared and assigned a value if (x > 30 && x <= 50) { x = x + 10; } x = x - 4; if (x < 40 && x > 60) x = x + 2;</pre>

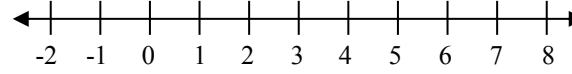
<p>10. If x has a value of -5 and y has a value of 63, what is displayed?</p> <p>11. If x has a value of 47 and y has a value of 47, what is displayed?</p> <p>12. Select the TRUE statement.</p> <p>a) H is never printed. b) H is always printed. c) H is only printed sometimes.</p>	<pre>// x and y are declared and initialized if (x > 30 y >= 60) System.out.println("G"); if (x < 100 x > 40) System.out.println("H"); if (y < 10 y > 50) System.out.println("K");</pre>
<p>13. If y has an initial value of 12, what is displayed?</p> <p>14. If y has an initial value of 26, what is displayed?</p> <p>15. If y has an initial value of 7, what is displayed?</p>	<pre>Scanner x = new Scanner(System.in); System.out.println("Number?"); int y = x.nextInt(); if (y > 10) y += 10; if (y > 20) y++; System.out.println(y);</pre>
<p>16. The code to the right does not compile. The “else” is highlighted and the error message is: ‘else’ without ‘if’ Why?</p> <p>17. Given that the above error is fixed by the addition of two characters, what will be displayed if the user enters 12?</p>	<pre>Scanner read = new Scanner(System.in); System.out.println("Number?"); int a = read.nextInt(); if (a > 10 && a < 20) a = 2 * a; System.out.println(a); else a--; System.out.println(a);</pre>
<p>18. If x has an initial value of -8, what is its final value?</p> <p>19. If x has an initial value of 9, what is its final value?</p>	<pre>// x is declared and assigned a value if (x > 10 x < 20) x = x + 2; if (x < 10 x > 20) x = x + 3;</pre>
<p>20. If x has an initial value of 15, what is its final value?</p> <p>21. If x has an initial value of 22, what is its final value?</p> <p>22. If x has a final value of 6, what was its initial value?</p>	<pre>// x is declared and assigned a value if (x > 10 && x < 20) x = x + 2; if (x < 10 && x > 20) x = x + 3; if (x > 10 && x > 20) x = x + 10;</pre>

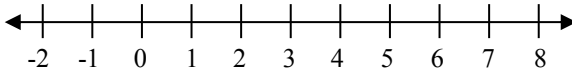
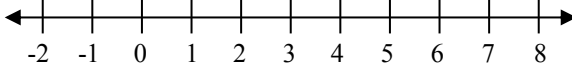
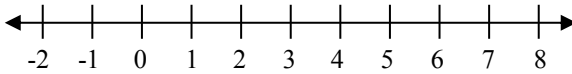
<p>Curly braces identify a “block of code.” A variable that is declared within a block of code cannot be used outside of that block of code. For example. This code does not compile. The last statement will be highlighted and the compiler error is: cannot find symbol - variable a</p> <p>You won’t be tested on this concept but you may run into this problem as you write your programs.</p>	<pre>Scanner scan = new Scanner(System.in); System.out.println("Number?"); int x = scan.nextInt(); if (x > 10) { int a = 4 * x; System.out.println(a); } System.out.println(a);</pre> <p style="text-align: right;">} Block of code.</p>
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<p>23. What is displayed?</p>	<pre>int x = 49; double y = Math.sqrt(x); System.out.println(y);</pre>
<p>24. This code does not compile. The error message is: <i>Type mismatch: cannot convert from double to int</i></p> <p>What is the problem?</p>	<pre>int x = 49; int y = Math.sqrt(x); System.out.println(y);</pre>
<p>25. What is the value of y?</p>	<pre>int x = -14; int y = Math.abs(x);</pre>

<p>26. List three different numbers that will cause A to be displayed.</p>	<pre>import java.util.Scanner; public class Runner{ public static void main(String [] args){ Scanner x = new Scanner(System.in); System.out.println("Enter a positive number"); double num2 = x.nextDouble(); int num = (int) Math.sqrt(num2); if (num*num == num2) System.out.println("A"); else System.out.println("B"); } }</pre>
<p>27. List three different numbers that will cause B to be displayed.</p>	

<p>28. Use the number line to show the possible values for <i>d</i>.</p> 	<pre>double d = 3* Math.random();</pre>
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<p>29. Use the number line to show the possible values for <i>d</i>.</p> 	<pre>double d = 5* Math.random() - 1;</pre>
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<p>30. Use the number line to show the possible values for x.</p> 	<pre>int x = (int) (2*Math.random());</pre>
<p>31. Use the number line to show the possible values for x.</p> 	<pre>int x = (int) (5 * Math.random()) - 2;</pre>
<p>32. Use the number line to show the possible values for x.</p> 	<pre>int x = (int) (4 * Math.random()) + 2;</pre>

<p>33. Complete the line of code so that n is assigned a random <u>integer</u> value within the following limits:</p> $7 \leq n \leq 15$	<pre>int n = _____</pre>
<p>34. Complete the line of code so that n is assigned a random <u>integer</u> value within the following limits:</p> $-4 \leq n \leq 8$	<pre>int n = _____</pre>
<p>35. What integers may be printed?</p>	<pre>int n = (int)(2 * Math.random()) + 5; if (Math.random() < 0.5) n = -1*n; System.out.print(n);</pre>
<p>36. What integers may be printed?</p>	<pre>int n = (int)(4 * Math.random()) + 1; n = 5 * n; System.out.print(n);</pre>

<p>37. If k has an initial value of 13, what is its final value?</p> <p>38. If k has an initial value of 22, what is its final value?</p> <p>39. If k has an initial value of 4, what is its final value?</p>	<pre>// k is declared and assigned a value if (k < 5) k += 2; else if (k < 10) k += 5; else if (k < 20) k += 6;</pre>
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40. If k has an initial value of 10, what is its final value?		<i>// k is declared and assigned a value</i>
41. If k has an initial value of 30, what is its final value?	1	if (k < 11)
	2	k += 4;
	3	else if (k < 40)
	4	k++;
42. Lines 7 and 8 can be deleted without changing how the code runs. TRUE FALSE	5	if (k > 11)
	6	k = k - 2;
	7	else if (k > 22)
	8	k -= 4;

43. If num has a value of 0.2, what is displayed?	double num = Math.random();
44. If num has a value of 0.35, what is displayed?	if (num < 0.25) { System.out.println("AA"); } else if (num < 0.5) { System.out.println("BB"); } else { System.out.println("CC"); }
45. About what percent of the time will CC appear?	
46. If the user enters 38, what is displayed?	Scanner read = new Scanner(System.in); System.out.print("Enter a number: "); int num = read.nextInt();
47. If the user enters -4, what is displayed?	if (num < 13) { System.out.println("ZZ"); } else if (num < 20) { System.out.println("YY"); } else if (num < 40) { System.out.println("XX"); }
48. If the user enters 99, what is displayed?	System.out.println("WW");
49. If x has an initial value of 8, what is displayed?	<i>// x is declared and assigned a value</i>
50. If x has an initial value of 11, what is displayed?	if (x > 10) x = x + 2; else if (x < 5) x++;
51. If x has an initial value of 19, what is displayed?	if (x <= 20) x = 2*x; else if (x > 5) x++;
	System.out.println(x);

<p>52. What values of x will cause “AE” to be displayed? If “AE” will never be displayed, write none.</p> <p>53. What values of x will cause “CD” to be displayed? If “CD” will never be displayed, write none.</p> <p>54. What value of x causes only one letter to be displayed? And what letter is displayed?</p>	<pre>// x is declared as an int and assigned a value if (x < 10) System.out.println("A"); else if (x > 12) System.out.println("B"); else System.out.println("C"); if (x > 10) System.out.println("D"); else if (x != 5) System.out.println("E");</pre>
<p>55. If x has a value of 56, what is displayed?</p> <p>56. What values of x will cause “west” to be displayed? If “west” is never displayed, write NEVER.</p>	<pre>// x is declared as an int and assigned a value if (x >= 20 && x <= 40) System.out.println("north"); else if (x >= 20) System.out.println("south"); else if (x < 10) System.out.println("east"); else System.out.println("west"); }</pre>
<p>57. If z has a value of 8, what is displayed?</p> <p>58. If z has a value of 32, what is displayed?</p>	<pre>// z is declared as an int and assigned a value if (z >= 22) z = z + 6; else if (z <= 15) z = z + 1; if (z <= 40) z = z + 9; else z = z + 14; System.out.println(z);</pre>