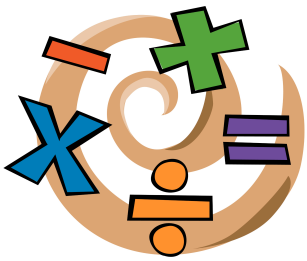
Middle School Math Summer Packet for Rising 8th Graders



Name:

This packet is to help you keep your math skills sharp over the summer break.

Please, show all of your work when possible!

Integer Addition and Subtraction Practice:

Think of the – as meaning "taking away" and the + or a positive number as meaning "giving".
So, -18 + 10 means I took away 18 and gave back 10, so how many are still taken away? → -18 + 10 = -8.

For the problems below:

- If you see a "– –", change it to a + and treat it like an addition problem.
- If you see a "+ –" change it to a – and treat it like a subtraction problem.

1. (-9) - 6 + 12 + 1 =

2. (-6) + -7 =

3. -10 + 7 =

4. -2 + 3 + 7 + 4 =

5. 0 –1 + (–10) –6 =

6. 8 + 2 – (–1) =

7. 6 + 9 + (–4) =

8. –8 + 0 – 2 =

9. –10 + (–19) =

10. –11 + 2 – 2 =

Integer Multiplication and Division Practice:

For the problems below:

- Both positive? Answer will be **positive**.
- Both negative? Answer will be **positive**.
- One positive, one negative? Answer will be **negative**.

11. $-2 \bullet (-9) =$

12. $7 \bullet (-11) =$

13. $-34 \div 2 =$

14. $-8 \div 2 =$

15. $22 \div (-2) =$

16. $90 \bullet (-6) =$

17. $-3 \bullet (-3) \bullet 3 =$

18. $12 \bullet (-4) \bullet 8 =$

19. $10 \div (-1) \bullet 4 =$

Order of Operations Practice:

20. $-4(2 + 1) =$

21. $17 + (-4) \div 2 =$

22. $10^2 \div (-5) =$

23. $-3(2 + 1) \bullet (-1) =$

24. $-18 + 7(6) =$

25. $-99 \div (-13 + 2) =$

26. $78 + (-5 \bullet (-1)) \div 2 =$

27. $6^2 \bullet (-1) =$

28. $-2^2 \bullet (8 - 10) =$

29. $9(2 \bullet 1) =$

30. $3 + 5 \bullet -5 + 1^2 =$

<u>Combining Like Terms Practice:</u>

Adding/Subtracting Rules: You can ONLY add or subtract like terms. Like terms are things with letters (variables) and things without letters.

For example:

- I CANNOT add 2x + 3, because they are not like terms. The final answer to this problem is just 2x + 3.
- I CAN add 2x + 2x, because they are like terms. This gives me an answer of 4x.
- I CAN subtract like terms in 6x + 4 –3x to get the answer 3x + 4.

Multiplying/Dividing Rules: You CAN multiply and divide unlike terms. Just be sure to include the variable with the answer.

For example:

- 2x •–10 = –20y, multiply the numbers and keep x with the answer
- –15x ÷3 = –5x, divide the numbers and keep x with the answer

31. 3x - 9x =

32. 44x + (–2x) + 10 =

33. –16b + 2b - 18b =

34. 7 • (–10y) =

35. 8x + 2 – 3x + 4 =

36. 8(m + 2) – 2 =

37. m^2 + 7 - 12 =

38. v – 7 – 1 + 3v =

39. $\sqrt{64} + 90 - 7x =$

40. $10x \div 2 =$

Solve each problem involving negative integers.

Hints:

Adding/Subtracting Rules

- *Different signs: treat as a subtraction problem.* ***i.e.*** $3 + -8 \rightarrow 3 - 8$
- *Same signs: treat as an additional problem. i.e.* $9 - -8 \rightarrow 9 + 8$

Multiplication/Dividing Rules

- *Same sign: positive answer. i.e.* $(-7)(-4) = 28$, $(2)(3) = 6$, $-8 \div -4 = 2$
- *Different signs: negative answer. I.e.* $-10 \div 5 = -2$, $(-6)(2) = -12$

41. $-9 + (-5) =$

42. $-20 + 33 =$

43. $(-2)(-88) =$

44. $-34 \div 2 =$

45. $8 - 11 =$

46. $8 - (-8) =$

47. $(16)(-3) =$

Solve each problem using the Order of Operations.

48. $-6(8 - 9) =$

49. $3(3 \div (-1.5)) =$

50. $(-9 + 2) + (-6 + (-10)) =$

51. $2 + (-3 + (-10)) + 2^2 =$

52. $(10 + 0)^2 - 94 =$

53. $64 \div (-8) + 10 =$

54. $(90 - 5^3) \cdot (-2) =$

Evaluate each expression using the value given for each variable.

Hint: Substitute the value in for the variable, then follow the Order of Operations. I.e. Evaluate $m + 10$*, when* $m = 6 \rightarrow 6 + 10 = 16$.

55. $y \div 2 + x;\ use\ x = 1,\ and\ y = 2.$

56. $a - 5 - b;\ use\ a = 10,\ and\ b = 4$

57. $p^3 + 10 + m;\ use\ m = 9,\ and\ p = 3$

58. $y - (z + z^2);\ use\ y = 10,\ and\ z = 2$

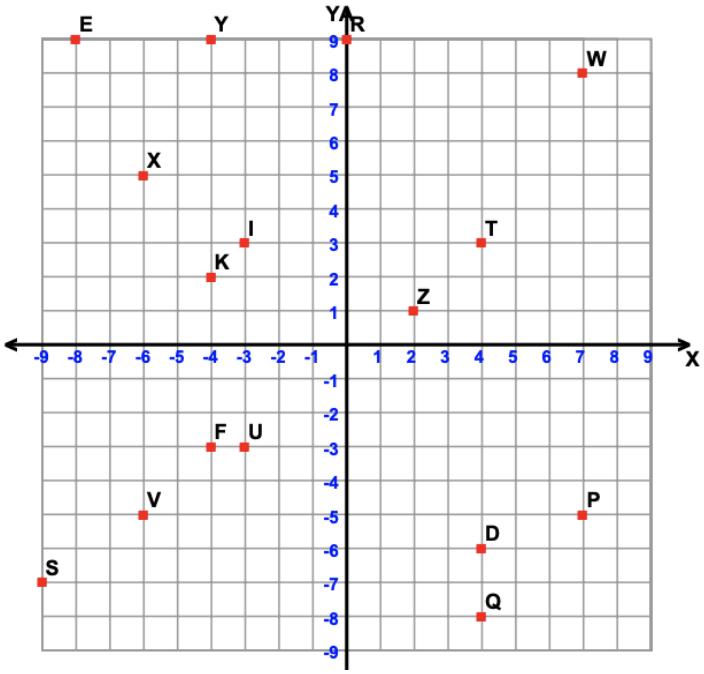
59. $6 \div 6 + z + x - y;\ use\ x = 2,\ y = 5,\ and\ z = 6$

60. $y \div 5 + 1 + x \div 6;\ use\ x = 6,\ and\ y = 5$

61. $y + 9 - x;\ use\ x = 1,\ and\ y = 3$

62. $m + p \div 5;\ use\ m = 1,\ and\ p = 5$

Use the coordinate plane below to answer the questions.



63. Which letter is at the point (4,-8)?

64. Which letter is at the point (-3,3)?

65. Which letter is at the point (-6,-5)?

66. What are the coordinates of point Z?

67. What are the coordinates of point S?

68. What are the coordinates of point X?

Identify the quadrant each point is located in.

69. (-1,-1)

70. (10,-7)

71. (4,1)

72. (-7,2)

73. (6,-1)