



Incoming 7th Grade Summer Math Guide Pinnacle/ Advanced Math

The following summer guide is to be used as a study tool to prepare you for the skills necessary for success in **7th Grade**. The following skills will be assessed as your first test grade. **The first test will be given within the first few weeks of school.** If you are struggling on certain skills, you can use resources such as www.ixl.com/math www.khanacademy.org/math/ www.coolmath.com. More can be found through an online search.

None of your work will be collected or graded at the beginning of the school year. This is being provided to you in advance of the school year to help you maintain knowledge of the skills you were already taught but you will need for your next course or grade.

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INTEGER RULES

Adding Rule: If the signs are the same, add (find the sum) and keep the same sign.

$$\text{EX. } -5 + -3 = -8$$

If the signs are different, subtract the numbers (find the difference) and use the sign of the larger number **EX. $-12 + 7 = -5$**

Subtracting Rule: “Keep/Change/Change (KCC)” Rule:

1. The first sign stays the same .2. change subtraction to addition
3. and change the sign of the second number. **Then see rules for adding.**

$$\text{EX. } +8 - (-6) = +8 + (+6) = 14$$

$$-10 - (+6) = -10 + (-6) = -16$$

Multiplying and dividing Rule: If the signs are the same, multiply or divide and the answer is always positive.

$$\text{EX. } -6 * -5 = +30 \quad -16 \div -4 = +4$$

If the signs are different, multiply or divide and the answer is always negative

$$\text{EX. } +5 * (-7) = -35 \quad -54 \div (+9) = -6$$

Topic: Adding and Subtracting Integers

<https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-negative-numbers-add-and-subtract/cc-7th-add-and-sub-integers/v/adding-integers-with-different-signs>

Add

1. $(-4) + (-7) =$
2. $(-10) + (-10) =$
3. $(-7) + (+1) =$
4. $(-5) + (+9) =$

Subtract

5. $(-4) - (+2) =$
6. $(-5) - (+12) =$
7. $(+7) - (-4) =$
8. $(+4) - (+5) =$

Evaluate the expression

9. $8 - 12 - (-6) =$
10. $9 - (-4) + 1 =$
11. $8 - (-8) - 3 =$

Topic: Multiplying and Dividing Integers

https://www.youtube.com/watch?v=K_tPbVPfHgk (tutorial)

Multiply

12. $4 * (-3) =$
13. $-6 * -5 =$
14. $2 * (-3) * 5 =$

Evaluate the expression—

15. $(-3)^2$ 16. $-3 \cdot (-4)^2$ 17. $(-7)^2$

Divide

18. $8 \div (-4)$ 19. $\frac{-10}{5}$ 20. $-35 \div 7$

21. $\frac{-56}{-8}$

Topic: Adding and Subtracting Rational Numbers

<https://www.youtube.com/watch?v=pZD5jxgHit0> (tutorial)

Add Simplify all fractions

22. $\frac{5}{16} + (-\frac{7}{16})$

23. $5.6 + (-1.3)$

24. $7.16 - (-12.76)$

Subtract Simplify all fractions

25. $\frac{3}{7} - \frac{10}{7}$

26. $\frac{7}{12} - (-\frac{13}{12})$

27. $-12.41 - (-9.95)$

EVALUATE Simplify all fractions

28. $\frac{7}{8} - (-2\frac{3}{4}) + 4\frac{1}{4}$

29. $5.76 - (-2.31) - 10.64$

30. $\frac{5}{18} - (-\frac{1}{6}) + (\frac{7}{9})$

Topic: Multiplying and Dividing Rational Numbers

<https://www.ixl.com/math/lessons/multiplying-and-dividing-rational-numbers> (tutorial)

Multiply and Divide (multiply- numerators and denominators across)

(divide- keep, change, flip. Then multiply across)

Simplify all fractions

31. $-\frac{2}{7} \div \frac{10}{7}$

32. $-\frac{1}{2} \div (-\frac{3}{4})$

33. $-0.72 \div -0.9$

34. $\frac{2}{5} * (-\frac{10}{7})$

35. $\frac{3}{2} (-2\frac{2}{9})$

36. $(-1\frac{3}{8})^2$

Topic: Simplify Expressions https://www.youtube.com/watch?v=3NHSwiv_pSE

tutorial

(combine like terms)

37. $-15m + 9m$

38. $8k - 2(4-3k)$

39. $25 - 6x - 12 - 2x$

40. $60m - 15(4 - 8m) + 20$

Find the sum (+) (combine like terms)

41. $(p - 3) + (p - 7)$

42. $(3n - 1) + (4 - n)$

43. $6(x - 3) + (2x - 9)$

Find the difference (-) combine like terms

44. $(k+3) - (3k-5)$

45. $(-6d + 2) - (7+2d)$

46. $(3x+8) - 6(-2.5x - 3)$

Topic: Solving One-step Equations (isolate the variable)

<https://www.youtube.com/watch?v=Se2nnNDLIE0> (tutorial)

Add or subtract.

47. $x+3=10$

48. $B - 6 = -14$

49. $10.5 + p = -8.32$

50. $K - \frac{1}{3} = \frac{5}{6}$

51. $3\frac{3}{4} = r + \frac{1}{8}$

52. $M + 1.06 = 5$

Multiply or Divide.

53. $4b = 24$

54. $-7n = 35$

55. $\frac{y}{-3} = 33$

56. $1.5q = -8.4$

57. $14 = 3y$

58. $\frac{g}{2.1} = -6.8$

Topic: Solving Two-step Equations (isolate the variable)

<https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-variables-expressions/cc-8th-two-step-equations-dec-fra/a/two-step-equations-review> **tutorial**

59. $3k - 2 = 10$

60. $5p + 2 = -10$

61. $12 = 2d + 3.2$

62. $4y - 16.3 = 53.1$

63. $7c - 2c = 45$

64. $3(k - 5) = -16$

65. $-1 - 5h = 14$

66. $1.25r - 7 = 2.5$

REVIEW ANSWER KEY

1. -11
2. -20
3. -6
4. +4
5. -6
6. -17
7. +11
8. -1
9. +2
10. +14
11. +13
12. -12
13. +30
14. -30
15. 9
16. -48
17. 49
18. -2
19. -2
20. -5
21. 7
22. $-\frac{2}{16}$ or $-\frac{1}{8}$
23. 4.3
24. 19.92
25. 1
26. $1\frac{8}{12}$ or $1\frac{2}{3}$
27. -2.46
28. $\frac{63}{8}$ or $7\frac{7}{8}$
29. -2.57
30. $\frac{11}{9}$ or $1\frac{2}{9}$
31. $-\frac{1}{5}$
32. $\frac{2}{3}$
33. 0.8
34. $\frac{4}{7}$
35. $-3\frac{1}{3}$
36. $1\frac{57}{64}$
37. -6m
38. 2k-8
39. 13- 8x
40. 180m-40
41. 2p-10
42. 2n+3
43. 8x-27
44. -2k+8
45. -8d-5
46. 18x+26
47. x=7
48. b= -8
49. p= -18.82
50. $K = \frac{7}{6}$ or $1\frac{1}{6}$
51. $r = \frac{29}{8}$ or $3\frac{5}{8}$
52. m= 3.94
53. b=6
54. n= -5
55. x= -99
56. q=-5.6
57. $y = \frac{14}{3}$ or $4\frac{2}{3}$
58. g= -14.28
59. k=4
60. $p = -\frac{12}{5}$ or $-2\frac{2}{5}$
61. d=4.4
62. y=17.35
63. c=9
64. $k = -\frac{1}{3}$ or -0.3
65. $h = -2\frac{4}{5}$ Or -2.8
66. r=7.6