

6th Grade Going Into 7th ITF

When starting class next year, you should have a concrete understanding of the topics listed below. We will cover Slope* in the first unit next year.

In order to help you with this, we are attaching a packet of practice that you should complete over the summer. There are problems for each of these skills and a solutions sheet at the back so you can check your solutions. All work should be completed on a separate sheet of paper and brought with you on the first day of school. We are also providing you with a textbook that you can use to help you with these different skills. Lastly, Khan Academy is a great resource for videos, practice, and quizzes to help you master these. IXL also has practice that you can complete. Simply search the topic you are working on.

I hope you have a great summer and can't wait to have you in class next year!

- Solving Multi-Step Equations with Variables on Both Sides, including:
 - equations with fractions
 - equations with decimals
 - equations with special solutions
- Solving Literal Equations (solving equations for a given variable)
- Solving Proportions
- Solving & Graphing Multi-Step Inequalities with Variables on Both Sides including:
 - inequalities with fractions
 - inequalities with decimals
 - compound inequalities
 - inequalities with special solutions
- Finding slope of a line given:
 - A graph
 - 2 points
 - An equation

Summer Assignment

Complete the following problems on a separate sheet of paper. Please bring this and all work with you on the first day of the 2018-2019 School Year.

Solve each equation. Leave all answers in simplest fraction form.

1) $\frac{-7+x}{7} = -2$

2) $-2 = \frac{n}{8} - 2$

3) $\frac{k}{-3} + 9 = 6$

4) $-4(m+1) = 8$

5) $-3 = \frac{x-2}{2}$

6) $-7 + 8x = -95$

7) $-2(1-a) = -2 + 2a$

8) $3k + 24 = -8(7k - 3)$

9) $3x + 26 = -5(-8 - x)$

10) $8x + 10 = 7(3x + 7)$

11) $30(-2x + 35) = 283 - 60x$

12) $28(14 - b) = -14(11b + 17)$

13) $-4(1 - 6p) = 28 - 8(-6p + 22)$

14) $-22(v - 20) = 37(v - 20)$

15) $35 + 35(8m - 19) = 18(-30m - 35)$

16) $5(1 + 6r) = 11 + 16(r - 17)$

17) $-12(m - 37) = -20(5m - 9)$

18) $-28(m - 37) = -28(m + 1)$

19) $\frac{23}{6}v + \frac{2}{3} = \frac{199}{15} + \frac{5}{6}v$

20) $\frac{23}{6}n - \frac{7}{6}n = \frac{41}{4} + n - \frac{13}{4} + \frac{1}{2}n$

21) $-1\frac{5}{6}n - \frac{107}{12} = -\frac{23}{6}n + \frac{3}{4}$

22) $-\frac{7}{4}x + 1 = \frac{2}{5}x + 1$

Solve each equation for the indicated variable.

$$23) g = 3b + \frac{15}{4a}, \text{ for } a$$

$$24) -\frac{3a}{4} = -v - 4w, \text{ for } a$$

$$25) -3 + 3a = -3d + 3r, \text{ for } a$$

$$26) z = -3x + 4 + 2y, \text{ for } x$$

$$27) g = \frac{16 + 16a}{b}, \text{ for } a$$

$$28) 3x + 4 = \frac{v}{w}, \text{ for } x$$

Solve each proportion. Leave all answers in simplest fraction form.

$$29) \frac{3}{6} = \frac{n}{8}$$

$$30) -\frac{5}{2} = \frac{9}{8a}$$

$$31) \frac{9}{r} = \frac{8}{2}$$

$$32) -\frac{b}{7} = \frac{7}{9}$$

$$33) -\frac{2}{p+3} = \frac{5}{4}$$

$$34) \frac{3}{v+10} = \frac{6}{12}$$

$$35) \frac{4}{2} = \frac{v-5}{4}$$

$$36) \frac{x-2}{4} = \frac{2}{3}$$

$$37) \frac{x-4}{5} = \frac{x}{8}$$

$$38) \frac{3n-12}{n} = \frac{8}{12}$$

$$39) \frac{b}{b+12} = \frac{6}{4}$$

$$40) \frac{v}{v-7} = \frac{11}{3}$$

$$41) \frac{12}{a-12} = \frac{4}{a+12}$$

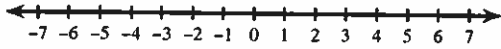
$$42) \frac{2}{12} = \frac{n-7}{n+7}$$

$$43) -\frac{10}{x-1} = \frac{4}{11x+1}$$

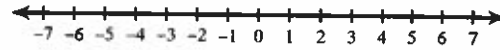
$$44) \frac{9}{8} = \frac{5v+7}{5v+6}$$

Draw a graph for each inequality.

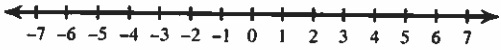
45) $2 \leq n$



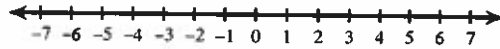
46) $x \leq -5$



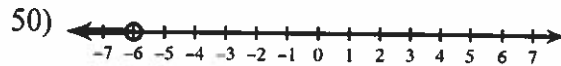
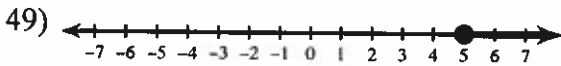
47) $1 \leq n$



48) $-n \geq -6$

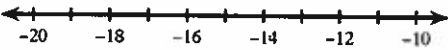


Write an inequality for each graph.

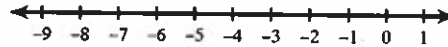


Solve each inequality and graph its solution.

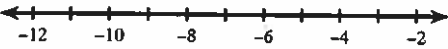
51) $-168 \leq 14k$



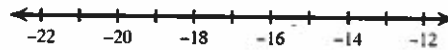
52) $-4 \leq 2 + x$



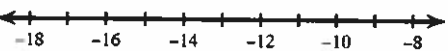
53) $80 \leq -4(-10 + x)$



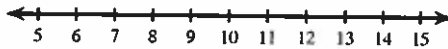
54) $-3a + 9 > 63$



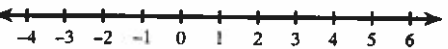
55) $\frac{m}{-2} - 10 > -5$



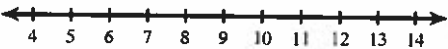
56) $-2 - 3m \geq -41$



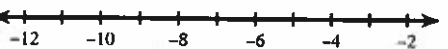
57) $8x - 6x < 4$



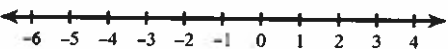
58) $-7 + 4x < -7 + 4x$



59) $-19 - 6n \geq -5(3 + n)$

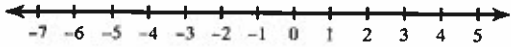


60) $18 + 2v > 5(-2 + 6v)$

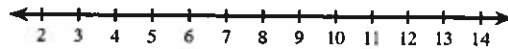


Solve each compound inequality and graph its solution.

61) $-8k + 2 \leq 5 - 9k$ and $-1 + 3k \geq k - 3$



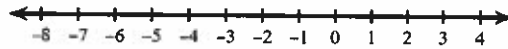
62) $-3v - 2 > 6 - 4v$ or $6v + 9 < 3 + 6v$



63) $x + 7 < 5x - 1$ or $7 - 3x < 7 - 9x$

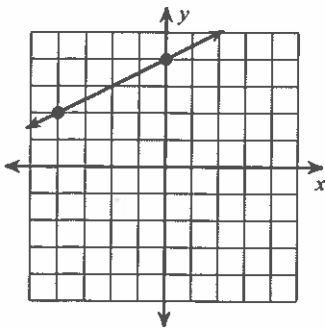


64) $-4m + 10 \geq -4m + 10$ or $3m - 8 \geq 4m - 1$

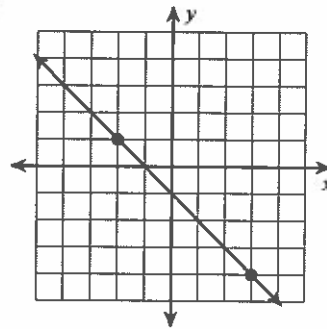


Find the slope of each line.

65)



66)



Find the slope of the line through each pair of points.

67) $(-8, 2), (-8, 11)$

68) $(15, -17), (3, 17)$

69) $(-11, -15), (10, -2)$

70) $(-9, -16), (-4, 19)$

71) $(10, 16), (-8, 2)$

72) $(1, 0), (20, 12)$

73) $(12, -15), (7, 16)$

74) $(-14, 3), (-14, -12)$

Write the slope-intercept form of the equation of each line.

75) $x + y = 9$

76) $4x - 7y = -7$

77) $3x - 5y = 12$

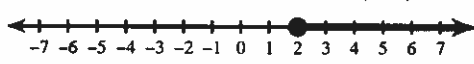
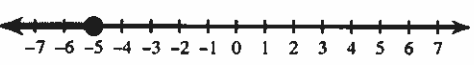

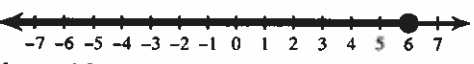
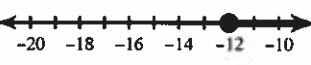
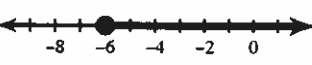
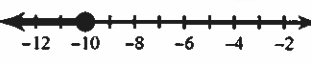
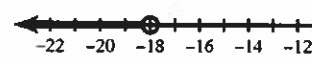
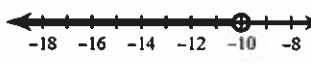
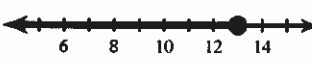
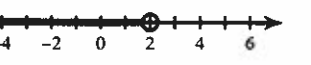
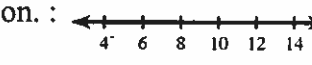
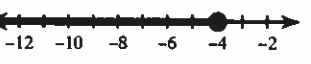
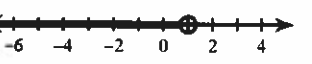
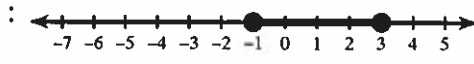
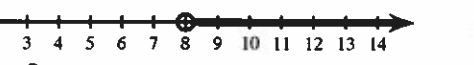
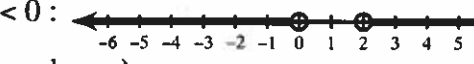
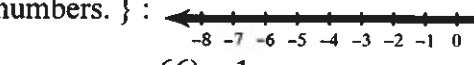
78) $5x - y = -4$

Find the slope of each line.

79) $y = -2x + 5$

80) $y = -5x + 5$

Answers to Summer Assignment

- | | | | |
|--|--|------------------------------------|------------------------------------|
| 1) $\{-7\}$ | 2) $\{0\}$ | 3) $\{9\}$ | 4) $\{-3\}$ |
| 5) $\{-4\}$ | 6) $\{-11\}$ | 7) $\{\text{All real numbers.}\}$ | 11) No solution. |
| 8) $\{0\}$ | 9) $\{-7\}$ | 10) $\{-3\}$ | 15) $\{0\}$ |
| 12) $\{-5\}$ | 13) $\{6\}$ | 14) $\{20\}$ | 19) $\left\{\frac{21}{5}\right\}$ |
| 16) $\{-19\}$ | 17) $\{-3\}$ | 18) No solution. | 23) $a = \frac{15}{4g - 12b}$ |
| 20) $\{6\}$ | 21) $\left\{\frac{29}{6}\right\}$ | 22) $\{0\}$ | 27) $a = \frac{gb - 16}{16}$ |
| 24) $a = \frac{4v + 16w}{3}$ | 25) $a = -d + r + 1$ | 26) $x = \frac{-z + 4 + 2y}{3}$ | 31) $\left\{\frac{9}{4}\right\}$ |
| 28) $x = \frac{-4w + v}{3w}$ | 29) $\{4\}$ | 30) $\left\{-\frac{9}{20}\right\}$ | 35) $\{13\}$ |
| 32) $\left\{-\frac{49}{9}\right\}$ | 33) $\left\{-\frac{23}{5}\right\}$ | 34) $\{-4\}$ | 39) $\{-36\}$ |
| 36) $\left\{\frac{14}{3}\right\}$ | 37) $\left\{\frac{32}{3}\right\}$ | 38) $\left\{\frac{36}{7}\right\}$ | 43) $\left\{-\frac{1}{19}\right\}$ |
| 40) $\left\{\frac{77}{8}\right\}$ | 41) $\{-24\}$ | 42) $\left\{\frac{49}{5}\right\}$ | |
| 44) $\left\{\frac{2}{5}\right\}$ | 45)  | | |
| 46)  | 47)  | | |
| 48)  | 49) $a \geq 5$ | 50) $p < -6$ | |
| 51) $k \geq -12$:  | 52) $x \geq -6$:  | | |
| 53) $x \leq -10$:  | 54) $a < -18$:  | | |
| 55) $m < -10$:  | 56) $m \leq 13$:  | | |
| 57) $x < 2$:  | 58) No solution.:  | | |
| 59) $n \leq -4$:  | 60) $v < 1$:  | | |
| 61) $-1 \leq k \leq 3$:  | | | |
| 62) $v > 8$:  | | | |
| 63) $x > 2$ or $x < 0$:  | | | |
| 64) $\{\text{All real numbers.}\}$:  | | | |
| 65) $\frac{1}{2}$ | 66) -1 | 67) Undefined | 68) $-\frac{17}{6}$ |
| 69) $\frac{13}{21}$ | 70) 7 | 71) $\frac{7}{9}$ | 72) $\frac{12}{19}$ |
| 73) $-\frac{31}{5}$ | 74) Undefined | 75) $y = -x + 9$ | 76) $y = \frac{4}{7}x + 1$ |
| 77) $y = \frac{3}{5}x - \frac{12}{5}$ | 78) $y = 5x + 4$ | 79) -2 | 80) -5 |