Prepare for the ISEE Upper Level Math Test in 7 Days

2019

A Quick Study Guide with Two Full-Length ISEE Upper Level Math Practice Tests

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By

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Description

Prepare for the ISEE Upper Level Math Test in 7 Days, which reflects the 2019 and 2020 test guidelines and topics, incorporates the best method and the right strategies to help you hone your math skills, overcome your exam anxiety, and boost your confidence -- and do your best to defeat ISEE Upper Level Math test quickly. This quick study guide contains only the most important and critical math concepts a student will need in order to succeed on the ISEE Upper Level test. Math concepts in this book break down the topics, so the material can be quickly grasped. Examples are worked step–by–step to help you learn exactly what to do.

This ISEE Upper Level Math new edition has been updated to duplicate questions appearing on the most recent ISEE Upper Level Math tests. It contains easy–to–read essential summaries that highlight the key areas of the ISEE Upper Level Math test. You only need to spend about 3 – 5 hours daily in your 7–day period in order to achieve your goal. After reviewing this book, you will have solid foundation and adequate practice that is necessary to fully prepare for the ISEE Upper Level Math.

Prepare for the ISEE Upper Level Math Test in 7 Days is for all ISEE Upper Level Math test takers. It is a breakthrough in Math learning — offering a winning formula and the most powerful methods for learning basic Math topics confidently. Each section offers step–by–step instruction and helpful hints, with a few topics being tackled each day.

Inside the pages of this comprehensive book, students can learn math topics in a structured manner with a complete study program to help them understand essential math skills. It also has many exciting features, including:

- Content 100% aligned with the 2019-2020 ISEE Upper Level test
- Written by ISEE UPPER LEVEL Math tutors and test experts
- Complete coverage of all ISEE Upper Level Math concepts and topics which you will be tested
- Step-by-step guide for all ISEE Upper Level Math topics
- Dynamic design and easy-to-follow activities
- Over 600 additional ISEE Upper Level Math practice questions in both multiple-choice and grid-in formats with answers grouped by topic, so you can focus on your weak areas
- 2 full-length practice tests (featuring new question types) with detailed answers

Effortlessly and confidently follow the step–by–step instructions in this book to prepare for the ISEE Upper Level Math in a short period of time.

Prepare for the ISEE Upper Level Math Test in 7 Days is the only book you'll ever need to master Basic Math topics! It can be used as a self–study course – you do not need to work with a Math tutor. (It can also be used with a Math tutor).

Ideal for self–study as well as for classroom usage.

Simplify each expression. (Combining like Terms)

26) $2x + x + 2 =$

27) $2(5x - 3) =$

28) $7x - 2x + 8 =$

29) $(-4)(3x - 5) =$

30) $9x - 7x - 5 =$

31) $16x - 5 + 8x =$

Solve each equation. (One–Step Equations)

32) $16 = -4 + x, x =$ ____

33) $x - 4 = -25, x =$ ____

34) $x + 12 = -9, x =$ ____

35) $14 = 18 - x, x =$ ____

36) $2 + x = -14, x =$ ____

37) $x - 5 = 15, x =$ ____

Solve each equation. (Multi–Step Equations)

38) $-3(2 + x) = 3$

39) $-2(4 + x) = 4$

40) $20 = -(x - 8)$

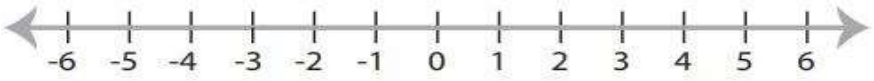
41) $2(2 - 2x) = 20$

42) $-12 = -(2x + 8)$

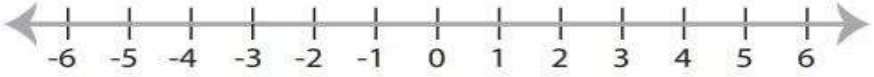
43) $5(2 + x) = 5$

Draw a graph for each inequality.

44) $x > -1$

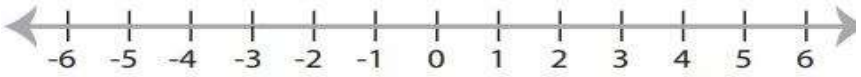


45) $x < 3$

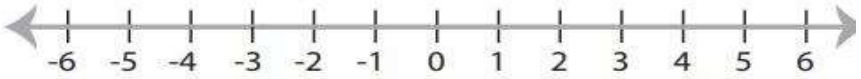


Solve each inequality and graph it.

46) $2x \geq 12$



47) $4 + x \leq 5$



Solve each inequality.

48) $4x - 16 \leq 12$

49) $16x - 4 \leq 28$

50) $-15 + 9x \leq 30$

51) $2(x - 3) \leq 6$

52) $14x - 10 \leq 18$

53) $8x - 42 < 38$

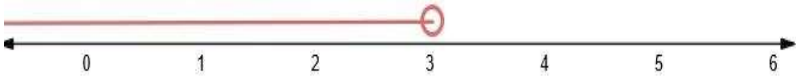
Answers

1) $3x + 27$
2) $-48x + 24$
3) $4x + 3$
4) $-7x^2 - 2$
5) $10x^2 + 5$
6) $15x^2 + 6x$
7) $2x^3 + 3x^2 - 12x$
8) $2x^5 - 5x^3 - 6x^2$
9) $18x^4 + 2x^2$
10) $6x + 4$
11) $15x + 15$
12) $12x - 32$
13) $-12x + 4$
14) $-3x - 6$
15) $10x + 10$
16) 7
17) 2
18) 73
19) -13
20) 6
21) 7
22) 14
23) 33
24) 0
25) 23
26) $3x + 2$
27) $10x - 6$
28) $5x + 8$
29) $-12x + 20$
30) $2x - 5$
31) $24x - 5$
32) 20
33) -21
34) -21
35) 4
36) -16
37) 20
38) -3
39) -6
40) -12
41) -4
42) 2
43) -1

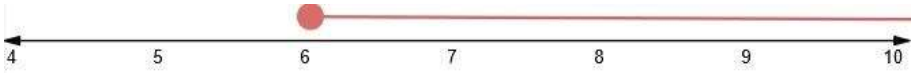
44)



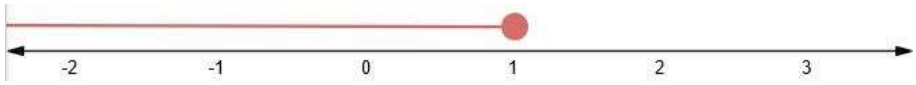
45)



46)



47)



48) $x \leq 7$
49) $x \leq 2$
50) $x \leq 5$
51) $x \leq 6$
52) $x \leq 2$
53) $x < 10$

Day 5:
Linear Equations and Inequalities

Math Topics that you'll learn today:

- ✓ Finding Slope
- ✓ Graphing Lines Using Slope–Intercept Form
- ✓ Graphing Lines Using Standard Form
- ✓ Writing Linear Equations
- ✓ Graphing Linear Inequalities
- ✓ Finding Midpoint
- ✓ Finding Distance of Two Points

"Nature is written in mathematical language." - Galileo Galilei

Finding Slope

Step-by-step guide:

- ✓ The slope of a line represents the direction of a line on the coordinate plane.
- ✓ A coordinate plane contains two perpendicular number lines. The horizontal line is x and the vertical line is y. The point at which the two axes intersect is called the origin. An ordered pair (x, y) shows the location of a point.
- ✓ A line on coordinate plane can be drawn by connecting two points.
- ✓ To find the slope of a line, we need two points.
- ✓ The slope of a line with two points A (x_1, y_1) and B (x_2, y_2) can be found by using this formula: $\frac{y_2 - y_1}{x_2 - x_1} = \frac{rise}{\text{run}}$

Examples:

1) Find the slope of the line through these two points: $(2, -10)$ and $(3, 6)$.

   Slope $= \frac{y_2 - y_1}{x_2 - x_1}$. Let (x_1, y_1) be $(2, -10)$ and (x_2, y_2) be $(3, 6)$. Then: slope $= \frac{y_2 - y_1}{x_2 - x_1} = \frac{6-(-10)}{3-2} = \frac{6+10}{1} = \frac{16}{1} = 16$

2) Find the slope of the line containing two points $(8, 3)$ and $(-4, 9)$.

   Slope $= \frac{y_2 - y_1}{x_2 - x_1} \rightarrow (x_1, y_1) = (8,3)$ and $(x_2, y_2) = (-4, 9)$. Then: slope $= \frac{y_2 - y_1}{x_2 - x_1} = \frac{9-3}{-4-8} = \frac{6}{-12} = \frac{1}{-2} = -\frac{1}{2}$

Graphing Lines Using Slope–Intercept Form

Step-by-step guide:

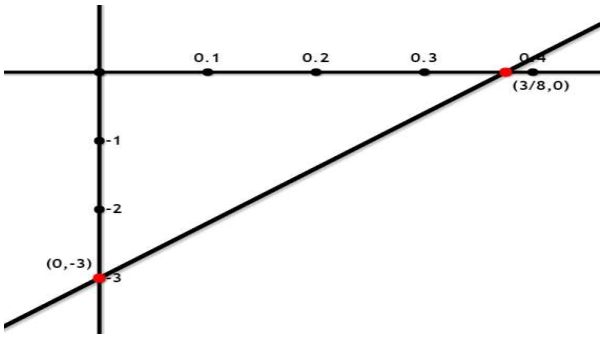
- ✓ Slope-intercept form of a line: given the slope $\boldsymbol{m}$ and the $\boldsymbol{y}$-intercept (the intersection of the line and y-axis) $\boldsymbol{b}$, then the equation of the line is:

$$\boldsymbol{y = mx + b}$$

Example: *Sketch the graph of* $y = 8x - 3$.

To graph this line, we need to find two points. When x is zero the value of y is -3. And when y is zero the value of x is 3/8. $x = 0 \rightarrow y = 8(0) - 3 = -3$, $y = 0 \rightarrow 0 = 8x - 3 \rightarrow x = \frac{3}{8}$

Now, we have two points: $(0,-3)$ and $(\frac{3}{8},0)$. Find the points and graph the line. Remember that the slope of the line is 8.



Graphing Lines Using Standard Form

Step-by-step guide:

- ✓ Find the x –intercept of the line by putting zero for y.
- ✓ Find the y –intercept of the line by putting zero for the x.
- ✓ Connect these two points.

Examples:

Sketch the graph of $x - y = -5$.

First isolate y for x: $x - y = -5 \rightarrow y = x + 5$
Find the x–intercept of the line by putting zero for y.
$y = x + 5 \rightarrow x + 5 = 0 \rightarrow x = -5$

Find the y–intercept of the line by putting zero for the x.
$y = 0 + 5 \rightarrow y = 5$

Then: x–intercept: $(-5,0)$ and y–intercept: $(0,5)$

Writing Linear Equations

Step-by-step guide:

- ✓ The equation of a line: $\boldsymbol{y = mx + b}$

- ✓ Identify the slope.
- ✓ Find the y-intercept. This can be done by substituting the slope and the coordinates of a point (x, y) on the line.

Examples:

1) What is the equation of the line that passes through $(2, -2)$ and has a slope of 7?
   The general slope-intercept form of the equation of a line is $y = mx +$, where m is the slope and b is the y-intercept.
   By substitution of the given point and given slope, we have: $-2 = (2)(7) + b$
   So, $b = -2 - 14 = -16$, and the required equation is $y = 7x - 16$.

2) Write the equation of the line through $(2, 1)$ and $(-1, 4)$.
   $Slop = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4-1}{-1-2} = \frac{3}{-3} = -1 \rightarrow m = -1$
   To find the value of b, you can use either points. The answer will be the same: $y = -x + b$
   $(2, 1) \rightarrow 1 = -2 + b \rightarrow b = 3$
   $(-1, 4) \rightarrow 4 = -(-1) + b \rightarrow b = 3$
   The equation of the line is: $y = -x + 3$

Graphing Linear Inequalities

Step-by-step guide:

- ✓ First, graph the "equals" line.
- ✓ Choose a testing point. (it can be any point on both sides of the line.)
- ✓ Put the value of (x, y) of that point in the inequality. If that works, that part of the line is the solution. If the values don't work, then the other part of the line is the solution.

Examples:

Sketch the graph of $y < 2x - 3$. First, graph the line:

$y = 2x - 3$. The slope is 2 and y-intercept is -3. Then, choose a testing point. The easiest point to test is the origin: $(0, 0)$

$$(0,0) \rightarrow y < 2x - 3 \rightarrow 0 < 2(0) - 3 \rightarrow 0 < -3$$

0 is not less than -3. So, the other part of the line (on the right side) is the solution.