

The schedule and homework assignments below are subject to change at the teacher's discretion.

Day	Topic	Homework
1 Feb 17 Wed	Lines & Solving Equations Review → Lines Review	P26 #1-6 (at least one from each question - try as many as needed to feel confident) Worksheet (HW)
2 Th	Solving Linear Systems by Graphing	pg. 60 # (1-4), 5, 7-9 Bracketed questions are optional Pg. 70 #1-4, 5EOO, 6, 16 Thinking Practice: 17, 21-23
3 Fri	Substitution	Homework: pg. 70 # (1-3), 7, 8, 9ab TIPS practice: 21
4 Mon	Elimination	Homework: pg. 101 # 1-3, 6, 7 Bolded questions are mandatory. TIPS practice: 10, 11, 22, 21**
5 Tu	Algebraic Expressions Systems of Equations Review	Worksheet
6 Wed	Word Problems Age Numbers	Worksheet
7 Th	Solving Mixture and Investment Problems	Worksheet
8 Fr	Speed Distance Time Problems	Worksheet
9 Mon	Speed Distance Time Trickier	Worksheet
10 Tu	Review	Worksheet

each question)

F19

F20

F23

24

25

26

27

M2

M3

M4

Wed

Test

Solving Equations Review

1. Remember to Solve an equation means to **Isolate the variable** (*get it by itself*) and determine its value that will make the equation true (e.g. LS=RS)
2. When you are moving a term you are really doing the **opposite operation** to that term and doing it to both sides of the equation
3. If equations contain fractions... **CLEAR THE FRACTIONS!!**
4. If there is a number or letter in front of a set of brackets you must first **Expand (Distributive Property)** to remove the brackets

Solve the following Equations. Show work for each.

a) $x + 10 = 15$

b) $x - 20 = -4$

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

d) $-8y = 32$

e) $3 - x = 7$

f) $3x + 4 = -5$

g) $\frac{x+4}{2} = 12$

h) $8(x + 3) = 40$

i) $-3 - 4y = -6$

j) $8x + 4 = 5x - 11$

k) $5(x - 2) = x + 2$

l) $x + 8 = 7$

m) $5x = -35$

n) $3 - x = 7$

o) $\frac{1}{2}x + 1 = 3$

p) $\frac{x+2}{3} = \frac{2}{1}$

$$\Rightarrow \frac{1}{2}x = 2$$

$$\times 2 \quad \times 2$$

$$x = 4$$

$$\textcircled{x} + 2 = 6$$

$$\quad -2 \quad -2$$

$$x = 4$$

s) $7x - 4 = 12 - 3x$

q) $\frac{x}{3} = \frac{4}{5}$

r) $\frac{3}{x} = \frac{7}{11}$

$$t) \frac{x}{3} - 4 = \frac{1}{2}$$

$$u) 3(x+3) = 5(x+2) + 1$$

$$v) 5y - 18 = -8$$

$$w) 5m + 16 = 3m$$

$$x) 13t - 15 = 35 - 12t$$

$$y) 3(5m+4) = 5(6m-1)$$

$$15m + 12 = 30m - 5$$

$$15m - 30m = -5 - 12$$

$$\frac{-15m}{-15} = \frac{-17}{-15}$$

$$\therefore m = \frac{17}{15}$$

$$z2) \frac{r+5}{4} + \frac{r-2}{3} = 7$$

$$CD = 4, 3 = 12$$

* Multiply 12 both sides

$$\Rightarrow 12 \left(\frac{r+5}{4} + \frac{r-2}{3} \right) = 12 \times 7$$

$$\Rightarrow 3(r+5) + 4(r-2) = 84$$

$$(3r) + 15 + (4r) - 8 = 84$$

$$7r + 7 = 84$$

$$7r = 77$$

$$\frac{7r}{7} = \frac{77}{7}$$

$$\therefore r = 11$$

Answers:

- | | | | | | | |
|------------|--------------|---------------|----------------|--------------|---------------|-------------|
| a) $x = 5$ | b) $x = 16$ | c) $x = -15$ | d) $y = -4$ | e) $x = -4$ | f) $x = -3$ | g) $x = 20$ |
| h) $x = 2$ | i) $y = 3/4$ | j) $x = -5$ | k) $x = 3$ | l) $x = -1$ | m) $x = -7$ | n) $x = -4$ |
| o) $x = 4$ | p) $x = 4$ | q) $x = 12/5$ | r) $x = 33/7$ | s) $x = 8/5$ | t) $x = 27/2$ | u) $x = -1$ |
| v) $y = 2$ | w) $m = -8$ | x) $t = 2$ | y) $m = 17/15$ | z) $x = -60$ | z2) $r = 11$ | |

Slope y-Intercept Form

$$y = mx + b$$

Where:

$$m = \text{slope}$$

$$b = y \text{ intercept}$$

Standard Form

$$ax + by + c = 0$$

How can we find Slope?

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{rise}}{\text{run}}$$

Example 1: Find the slope of the line joining the points $K(-3, -3)$ and $L(-4, -6)$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - (-3)}{-4 - (-3)} = \frac{-3}{-1} = 3$$

Example 2: Write, in the form $y = mx + b$, the equation of the line that has a slope of 6 and passes through $(1, 5)$.

$$m = 6 \quad b = ? \quad \text{When } x = 1, y = 5$$

$$y = mx + b$$

$$5 = (6 \cdot 1) + b$$

$$\therefore y = 6x - 1$$

$$5 = 6 + b$$

$$5 - 6 = b \quad \therefore b = -1$$

Example 3: Express the following in standard form:

a) $4x - 2y = 12$

$$\Rightarrow 4x - 2y - 12 = 0$$

b) $y = 3x - 1$

$$-3x + y + 1 = 0$$

$$m_1 = \frac{-1}{m_2} =$$

Parallel lines have the same slope. Perpendicular lines have negative reciprocal slopes.

then they are perpendicular

Example 4:

Are the lines with the given slopes parallel perpendicular or neither? to each other.

a) $m_1 = 6, m_2 = -6$ Neither

b) $m_1 = 0.25, m_2 = -4$ perpendicular

$$6 \rightarrow \frac{-1}{6}$$

$$\frac{25}{100} = \frac{1}{4} \rightarrow \frac{-4}{1} = -4$$

$$\frac{2}{10} = \frac{1}{5}$$

c) $m_1 = 0.2, m_2 = \frac{1}{5}$ parallel

Example 5: Write an equation for the line that is perpendicular to $y = \frac{1}{3}x + 4$ and passes through the point $(2, 4)$. \rightarrow when $x=2, y=4$

$$m_2 = -\frac{3}{1} = -3 \quad b_2 = ?$$

$$y = -3x + b_2$$

$$4 = -3(2) + b_2$$

$$4 = -6 + b_2$$

$$10 = b_2$$

$$\therefore y = -3x + 10$$

Lines can be graphed using 3 methods:

1. Table of values

2. Graphing with two intercepts (y int and x int)

3. Slope and y intercept

Example 6: Graph the following lines:

a) $y = \frac{8x+2}{4}$ Table of value

$$0 \rightarrow y = \frac{(8 \cdot 0) + 2}{4} = \frac{2}{4} = \frac{1}{2}$$

x	y
0	$\frac{1}{2}$
1	$\frac{10}{4}$ or $\frac{5}{2}$
-1	$-\frac{6}{4}$ or $-\frac{3}{2}$

b) $y = \frac{1}{4}x - 2 \rightarrow$ slope and y int

$$y = mx + b$$

* y int = -2 $\rightarrow (0, -2)$

* slope = $\frac{1}{4} = \frac{\text{rise}}{\text{run}}$

c) $2x + 6y = 24 \rightarrow$ Graphing with two intercepts

y int $\rightarrow x=0 \rightarrow$ equation $\rightarrow (2 \cdot 0) + 6y = 24$

$$\frac{6y}{6} = \frac{24}{6} \rightarrow y = 4 \rightarrow (0, 4)$$

Homework: pg. 26 #1-6 (at least 1 from each question - try as many as needed to feel confident)

x int $\rightarrow y=0 \rightarrow$ equation $\rightarrow 2x + (6 \cdot 0) = 24$

$$2x = 24 \rightarrow x = 12 \rightarrow (12, 0)$$

