Day 1 Homework Algebra 2 & Trig.

Name Master 6

Date _____ Block 6

1-3 Solving Linear Equations Review

Properties of Equality To solve equations, we can use properties of equality.

Addition and Subtraction Properties of Equality	For any real numbers a, b, and c, if $a = b$, then $a + c = b + c$ and $a - c = b - c$.
Multiplication and Division Properties of Equality	For any real numbers a, b, and c, if $a = b$, then $a \cdot c = b \cdot c$ and, if $c \neq 0$, $\frac{a}{c} = \frac{b}{c}$.

Example 1: Solve $10 - 8x = 50$.

$10 - 8x = 50$	Original equation
$10 - 8x - 10 = 50 - 10$	Subtract 10 from both sides.
$-8x = 40$	Simplify.
$x = -5$	Divide both sides by $-$

Example 2: Solve $4x + 5y = 100$ for y.

$4x + 5y = 100$	Original equation
$4x + 5y - 4x = 100 - 4x$	Subtract $4x$ from both sides.
$5y = 100 - 4x$	Simplify.
$y = \frac{1}{5}(100 - 4x)$	Divide both sides by 5.

Solve each equation (on separate paper if you need more space). Check your solution.

1. $\frac{3s}{3} = \frac{45}{3}$ → $s = 15$

2. $17 = 9 - a$
$-9 \quad -9$
$\frac{8}{-1} = \frac{-9}{-1}$ → $a = -8$

3. $5t - 1 = 6t - 5$
$-5t \quad -5t$
$-1 = t - 5$
$+5 \quad +5$ → $t = 4$

4. $\frac{2}{3}m = \frac{1}{2}$ (multiply by $\frac{3}{2}$)
$m = \frac{3}{4}$

5. $-8 = -2(z + 7)$
$-8 = -2z - 14$
$6 = -2z$ → $z = -3$

6. $3x + 17 = 5x - 13$
$17 = 2x - 13$
$30 = 2x$ → $x = 15$

7. $120 - \frac{3}{4}y = 60$
$-\frac{4}{3}\left(-\frac{3}{4}y\right) = (-60)\left(-\frac{4}{3}\right)$
$y = 80$

8. $\frac{5}{2}n = 98 - n$
$\frac{5}{2}n + \frac{2}{2}n = 98$
$\frac{7}{2}n = 98$ → $n = 98\left(\frac{2}{7}\right)$
$n = 28$

9. $4.5 + 2p = 8.7$
$2p = 4.2$
$p = 2.1$

Solve each equation or formula for the specified variable (on separate paper if you need more space).

10. $a = 3b - c$, for b
$\frac{a + c}{3} = \frac{3b}{3}$ → $b = \frac{a + c}{3}$ or $\frac{1}{3}a + \frac{1}{3}c$

11. $\frac{s}{2t} = 10$, for t
$s = 20t$ → $t = \frac{s}{20}$

12. $2xy = x + 7$, for x
$2xy - x = 7$
$x(2y - 1) = 7$ → $x = \frac{7}{2y - 1}$

13. $\frac{d}{2} + \frac{f}{4} = 6$, for f
$4\left(\frac{f}{4}\right) = \left(6 - \frac{d}{2}\right)4$ → $f = 24 - 2d$

14. $3(2j - k) = 108$, for j
$2j - k = 36$
$2j = k + 36$
$j = \frac{k + 36}{2}$ or $\frac{1}{2}k + 18$

15. $\frac{m}{n} + 5m = 20$, for m
$m\left(\frac{1}{n} + 5\right) = 20$ → $m = \frac{20}{\frac{1}{n} + 5}$

see L.L. for more...

15. $\frac{m}{n} + 5m = 20$

$\frac{m}{n} + \frac{5mn}{n} = 20$

$\frac{m+5mn}{n} = 20$

$m + 5mn = 20n$

$m(1+5n) = 20n$

$m = \frac{20n}{1+5n}$ ☺ Much better!

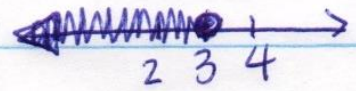
1-5 Solving Linear Inequalities Review

1. $7(7a-9) \leq 84$

$49a - 63 \leq 84$

$49a \leq 147$

$a \leq 3$

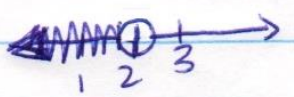


2. $3(9z+4) > 35z - 4$

$27z + 12 > 35z - 4$

$16 > 8z$

$2 > z \Rightarrow z < 2$

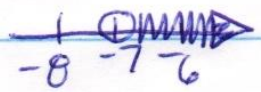


3. $5(12-3n) < 165$

$60 - 15n < 165$

$-15n < 105$

$n > -7$



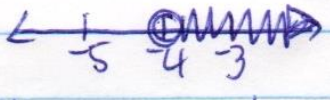
4. $18 - 4k < 2(k+21)$

$18 - 4k < 2k + 42$

$18 < 6k + 42$

$-24 < 6k$

$-4 < k \Rightarrow k > -4$



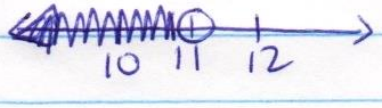
5. $4(b-7) + 6 < 22$

$4b - 28 + 6 < 22$

$4b - 22 < 22$

$4b < 44$

$b < 11$



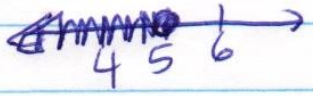
6. $2 + 3(m+5) \geq 4(m+3)$

$2 + 3m + 15 \geq 4m + 12$

$3m + 17 \geq 4m + 12$

$17 \geq m + 12$

$5 \geq m \Rightarrow m \leq 5$



7. Jim: \$5.75/hr 26% of total pay is deducted ≥ 110/wk

$5.75h - .26(5.75h) \geq 110$

$5.75h - 1.50h \geq 110$

$4.25h \geq 110$

$h \geq 25.88$

He needs to work at least 26 hours a week