College Algebra CHS Name_____

Linear Equations

Date_____

Solve each equation.

1) $3k + 7(1 - k) = 3 + 2(-3k - 6)$

2) $-8(-8a + 2) = 2(-6a - 8)$

3) $-5 - 4(7 - x) = 5(x - 7)$

4) $1 - 7(-3x - 7) = 7x + 6(7 + x)$

5) $-2(x - 8) = 2(-4x + 1) + 8x$

6) $2(3 + n) = 4 + 4(n + 2)$

7) $-8(-7 + 5n) = 6(7 - 6n) + 3n$

8) $-5(2k - 6) = -8(k - 4) + 8$

9) $3(7x + 7) = -3(6x + 4) - 6$

10) $2 - x + 1 + 8x = -2(x + 4) + 2(6x + 7)$

11) $\frac{4}{3}\left(-\frac{11}{5}n - \frac{3}{2}\right) = -\frac{5}{4}\left(-\frac{2}{3}n + \frac{1}{5}\right)$

12) $\frac{7}{4}\left(2r - \frac{9}{5}\right) - \frac{10}{3}\left(\frac{3}{2}r + \frac{3}{2}\right) = -\frac{3}{2}r + 1 - \frac{7}{5}r - \frac{3}{2}$

13) $-\frac{5}{4}\left(\frac{5}{4}x + 1\right) + \frac{1}{4} = -\frac{15}{4} + 2\left(x - \frac{7}{4}\right)$

14) $-\left(\frac{8}{5}m + 1\right) = \frac{3}{4}\left(-\frac{17}{5}m + \frac{4}{5}\right) + \frac{3}{4}m$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

15) Slope $= -\frac{8}{5}$, y-intercept $= -4$

16) Slope $= -4$, y-intercept $= -3$

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

17) $3x - 4y = -26$

18) $x + y = 0$

19) $y - 1 = \frac{3}{4}(x - 1)$

20) $y - 1 = \frac{1}{3}(x + 1)$

21) $y + 4 = -3x$

22) $-x = 3 + y$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

23) through: $(0, -4)$, slope $= -\frac{1}{3}$

24) through: $(4, 2)$, slope $= -\frac{1}{2}$

Write the slope-intercept form of the equation of the line through the given points.

25) through: $(3, 1)$ and $(2, 0)$

26) through: $(0, 1)$ and $(3, 0)$

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

27) through: $(-4, -1)$, parallel to $y = -\frac{1}{2}x + 4$

28) through: $(1, -5)$, parallel to $y = -10x - 4$

29) through: $(4, 4)$, perp. to $y = -2x + 4$

30) through: $(4, 4)$, perp. to $y = 5x + 1$

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Solve each equation.

1) $3k + 7(1 - k) = 3 + 2(-3k - 6)$

$\{-8\}$

2) $-8(-8a + 2) = 2(-6a - 8)$

$\{0\}$

3) $-5 - 4(7 - x) = 5(x - 7)$

$\{2\}$

4) $1 - 7(-3x - 7) = 7x + 6(7 + x)$

$\{-1\}$

5) $-2(x - 8) = 2(-4x + 1) + 8x$

$\{7\}$

6) $2(3 + n) = 4 + 4(n + 2)$

$\{-3\}$

7) $-8(-7 + 5n) = 6(7 - 6n) + 3n$

$\{2\}$

8) $-5(2k - 6) = -8(k - 4) + 8$

$\{-5\}$

9) $3(7x + 7) = -3(6x + 4) - 6$

$\{-1\}$

10) $2 - x + 1 + 8x = -2(x + 4) + 2(6x + 7)$

$\{-1\}$

11) $\frac{4}{3}\left(-\frac{11}{5}n - \frac{3}{2}\right) = -\frac{5}{4}\left(-\frac{2}{3}n + \frac{1}{5}\right)$

$\left\{-\frac{105}{226}\right\}$

12) $\frac{7}{4}\left(2r - \frac{9}{5}\right) - \frac{10}{3}\left(\frac{3}{2}r + \frac{3}{2}\right) = -\frac{3}{2}r + 1 - \frac{7}{5}r - \frac{3}{2}$

$\left\{\frac{153}{28}\right\}$

13) $-\frac{5}{4}\left(\frac{5}{4}x + 1\right) + \frac{1}{4} = -\frac{15}{4} + 2\left(x - \frac{7}{4}\right)$

$\left\{\frac{100}{57}\right\}$

14) $-\left(\frac{8}{5}m + 1\right) = \frac{3}{4}\left(-\frac{17}{5}m + \frac{4}{5}\right) + \frac{3}{4}m$

$\{8\}$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

15) Slope $= -\frac{8}{5}$, y-intercept $= -4$

$y = -\frac{8}{5}x - 4$

16) Slope $= -4$, y-intercept $= -3$

$y = -4x - 3$

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

17) $3x - 4y = -26$

$y = \frac{3}{4}x + \frac{13}{2}$

18) $x + y = 0$

$y = -x$

19) $y - 1 = \frac{3}{4}(x - 1)$

$y = \frac{3}{4}x + \frac{1}{4}$

20) $y - 1 = \frac{1}{3}(x + 1)$

$y = \frac{1}{3}x + \frac{4}{3}$

21) $y + 4 = -3x$

$y = -3x - 4$

22) $-x = 3 + y$

$y = -x - 3$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

23) through: $(0, -4)$, slope $= -\frac{1}{3}$

$y = -\frac{1}{3}x - 4$

24) through: $(4, 2)$, slope $= -\frac{1}{2}$

$y = -\frac{1}{2}x + 4$

Write the slope-intercept form of the equation of the line through the given points.

25) through: $(3, 1)$ and $(2, 0)$

$y = x - 2$

26) through: $(0, 1)$ and $(3, 0)$

$y = -\frac{1}{3}x + 1$

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

27) through: $(-4, -1)$, parallel to $y = -\frac{1}{2}x + 4$

$y = -\frac{1}{2}x - 3$

28) through: $(1, -5)$, parallel to $y = -10x - 4$

$y = -10x + 5$

29) through: $(4, 4)$, perp. to $y = -2x + 4$

$y = \frac{1}{2}x + 2$

30) through: $(4, 4)$, perp. to $y = 5x + 1$

$y = -\frac{1}{5}x + \frac{24}{5}$