

Algebra I Review Key

1. $-9b = 3(bx - a)$

$-9b = 18x - 6b$

$-9b = 18x$

$-5 = x$

2. $25 - 7m = -5(7m - 5)$

$25 - 7m = -35m + 25$

$28m = 0$

$m = 0$

3. $7(5x - 3) = -6x + 2(3x + 7)$

$35x - 21 = -6x + 6x + 14$

$35x = 35$

$x = 1$

4. $-\frac{27}{10} = \frac{2}{5}k - \frac{7}{4}k$

$-\frac{54}{20} = \frac{2}{20}k - \frac{35}{20}k$

$-\frac{54}{20} = -\frac{27}{20}k$

$27k = 54$

$k = 2$

5. $z = -b + \frac{m}{a}$

$z + b = \frac{m}{a}$

$a(z + b) = m$

$a = \frac{m}{z + b}$

6. $zm = \frac{a + b}{a}$

$azm = a + b$

$azm - a = b$

$a(zm - 1) = b$

$a = \frac{b}{zm - 1}$

7. $-14 \leq n - 9 \leq -13$

$-5 \leq n \leq -4$

8. $-2 < -1 - x < 8$

$-1 < -x < 9$

$1 > x > -9$

9. $(x_1, y_1) (x_2, y_2)$
 $(0, -4) (-4, 4)$

$m = \frac{4 - (-4)}{-4 - 0} = \frac{8}{-4} = -2$

$y - (-4) = -2(x - 0)$

$y + 4 = -2x \quad y = -2x - 4$

10. $(x_1, y_1) (x_2, y_2)$
 $(3, -4) (-2, -4)$

$m = \frac{-4 - (-4)}{-2 - 3} = \frac{0}{-5} = 0$

$y - (-4) = 0(x + 2)$

$y + 4 = 0x$

$y = -4$

$$11. \frac{\cancel{3}x^2 y^2}{\cancel{3}x^3 y^3} = y^2$$

$$12. \frac{\cancel{2}m^{-2}n^{-3}}{m^3 \cancel{2}m^2 n^{-1}} = \frac{1}{m^7 n^2}$$

$$13. x^{-4} y^{-3} (2x^{-4} y^4)^{-4}$$

$$= x^{-4} y^{-3} 2^{-4} x^{16} y^{-16}$$

$$= \frac{x^{12}}{16 y^{19}}$$

$$14. 2m^3 (m^3)^3$$

$$2m^3 \cdot m^9$$

$$2m^{12}$$

$$15. 3vu^4 + 12v^4 - 24v^3$$

$$3v(u^4 + 4v^3 - 8v)$$

$$16. 14v^3 + 8u + 8$$

$$2(7v^3 + 4u + 4)$$

$$17. x^2 - 13x + 36$$

$$(x-9)(x-4)$$

$$18. v^2 + 13v + 36$$

$$(v+9)(v+4)$$

$$19. 3r^2 + 16r - 12$$

$$r^2 + 16r - 36$$

$$\left(\frac{r+18}{3}\right) \left(\frac{r-2}{3}\right)$$

$$20. 7a^2 - 38a - 24$$

$$a^2 - 38a - 168$$

$$\left(\frac{a-42}{7}\right) \left(\frac{a+4}{7}\right)$$

$$(r+6)(3r-2)$$

$$(a-6)(7a+4)$$

Slide +
divide

$$\begin{aligned}
 21. \quad r^2 &= 8 + 2r \\
 r^2 - 2r - 8 &= 0 \\
 (r - 4)(r + 2) &= 0 \\
 r - 4 = 0 \quad r + 2 = 0 \\
 r = 4 \quad , \quad r = -2
 \end{aligned}$$

$$\begin{aligned}
 22. \quad 6x^2 &= -36x \\
 6x^2 + 36x &= 0 \\
 6x(x + 6) &= 0 \\
 6x = 0 \quad x + 6 = 0 \\
 x = 0 \quad , \quad x = -6
 \end{aligned}$$

$$\begin{aligned}
 23. \quad \text{Eugene} &\rightarrow 6x + 8y = 108 \\
 \text{Sarawong} &\rightarrow (13x + y = 87) \times 8
 \end{aligned}$$

Hostas = x
Grass = y

$$\begin{array}{r}
 6x + 8y = 108 \\
 - 104x + 8y = 696 \\
 \hline
 -98x = -588 \\
 x = 6
 \end{array}$$

$$\begin{array}{r}
 13(6) + y = 87 \\
 78 + y = 87 \\
 y = 9
 \end{array}$$

Hostas \rightarrow \$6
Grass \rightarrow \$9

$$\begin{aligned}
 24. \quad \text{Day 1} &\rightarrow (12x + 2y = 70) \times 7 \\
 \text{Day 2} &\rightarrow 11x + 14y = 125
 \end{aligned}$$

Senior \rightarrow x
Student \rightarrow y

$$\begin{array}{r}
 + 84x + 14y = +490 \\
 - 11x + 14y = 125 \\
 \hline
 73x = 365 \\
 x = 5
 \end{array}$$

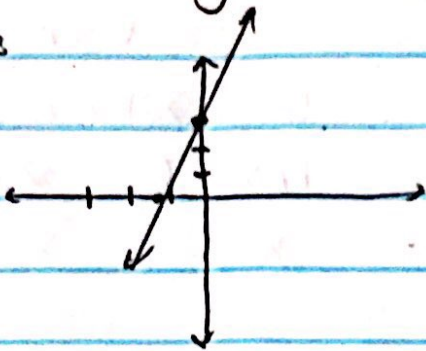
$$\begin{array}{r}
 12(5) + 2y = 70 \\
 60 + 2y = 70 \\
 2y = 10 \\
 y = 5
 \end{array}$$

Senior \rightarrow \$5
Student \rightarrow \$5

25. $8x - 3y = -9$

$x = -\frac{9}{8}$

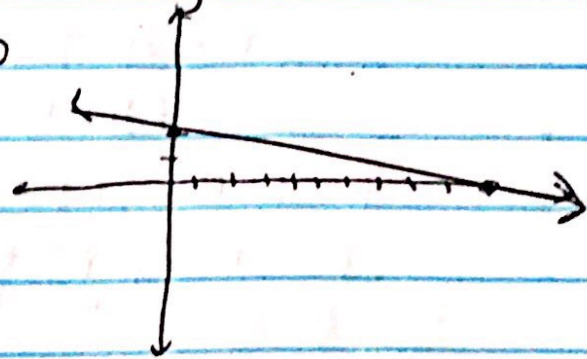
$y = 3$



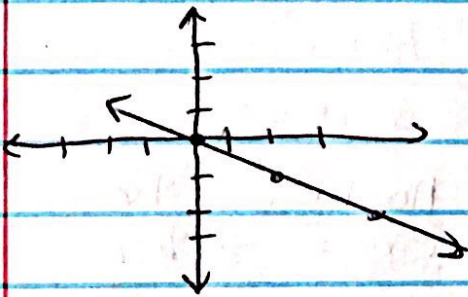
26. $x + 5y = 10$

$x = 10$

$y = 2$



27. $y = \frac{1}{2}x$



28. $y = x + 3$

