Solving Literal Equations

Unit 2: Equations and Inequalities

Solve each equation for the indicated variable:

1. $u = b + k - a$, for a

$-b-k \quad -b-k$

$\frac{-b}{-1} - \frac{k}{-1} + \frac{u}{-1} = \frac{-a}{-1}$

$\boxed{b + k - u = a}$

2. $z = am - b$, for a

$+b \quad +b$

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

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

3. $\frac{kx}{k} = \frac{w}{k} - \frac{v}{k}$, for x

$\boxed{x = \frac{w}{k} - \frac{v}{k}}$

OR $\boxed{x = \frac{w-v}{k}}$

4. $\left[u = \frac{ab}{k}\right] \cdot k$, for a

$k \cdot$

$\frac{ku}{b} = \frac{ab}{b}$

$\boxed{\frac{ku}{b} = a}$

5. $x - c = d - r$, for x

$+c \quad +c$

$\boxed{x = d - r + c}$

6. $\left[\frac{k}{x} = wv\right] \cdot x$, for x

$x \cdot$

$\frac{k}{wv} = \frac{xwv}{wv}$

$\boxed{\frac{k}{wv} = x}$

7. $\left[\frac{m}{a} = n - p\right] \cdot a$, for a

$a \cdot$

$\frac{m}{n-p} = \frac{a(n-p)}{n-p}$

$\boxed{\frac{m}{n-p} = a}$

8. $u = -y + \frac{k}{x}$, for x

$+y \quad +y$

$x \cdot \left[u + y = \frac{k}{x}\right] \cdot x$

$\frac{x(u+y)}{u+y} = \frac{k}{u+y}$

$\boxed{x = \frac{k}{u+y}}$

9. $\frac{am}{m} = \frac{n}{m} + \frac{p}{m}$, for a

$\boxed{a = \frac{n}{m} + \frac{p}{m}}$

OR $\boxed{a = \frac{n+p}{m}}$

10. $x - c = r + d$, for x

$+c \quad +c$

$\boxed{x = r + d + c}$

11. $\frac{m}{x} = n + p$, for x

$x \cdot \left[\frac{m}{x} = n + p\right] \cdot x$

$m = x(n+p)$

$\frac{m}{n+p} = \frac{x(n+p)}{n+p}$

$\boxed{\frac{m}{n+p} = x}$

12. $a + k = w + v$, for a

$-k \quad -k$

$\boxed{a = w + v - k}$

13. $a += w - v$, for a

↑

missing a variable so we can't solve, OR we could say it's already solved here.

14. $k - a = v + w$, for a

$-k \quad -k$

$-a = v + w - k$

$\frac{-a}{-1} = \frac{v}{-1} + \frac{w}{-1} - \frac{k}{-1}$

$\boxed{a = -v - w + k}$

15. $\frac{xm}{m} = \frac{p}{m} + \frac{n}{m}$, for x

$\boxed{x = \frac{p}{m} + \frac{n}{m}}$

OR $\boxed{x = \frac{p+n}{m}}$

16. $g = y + \frac{c}{x}$, for x

$-y \quad -y$

$x \cdot \left[g - y = \frac{c}{x}\right] \cdot x$

$x(g-y) = c$

$\frac{x(g-y)}{g-y} = \frac{c}{g-y}$

$\boxed{x = \frac{c}{g-y}}$

17. $a - c = r + d$, for a

$+c \quad +c$

$\boxed{a = r + d + c}$

18. $a - k = v - w$, for a

$+k \quad +k$

$\boxed{a = v - w + k}$

19. $\frac{ak}{k} = \frac{\frac{v}{w}}{k}$, for a

$a = \frac{\frac{v}{w}}{\frac{k}{1}} \cdot \frac{1}{k}$

$\boxed{a = \frac{v}{wk}}$

20. $\frac{a}{c} = \frac{d}{r}$, for r

$r \cdot \left[\frac{a}{c} = \frac{d}{r}\right] \cdot r$

$\frac{c}{a}\left[r \cdot \frac{a}{c} = d\right]\frac{c}{a}$

$\boxed{r = \frac{dc}{a}}$