TRANSPOSITION WORKSHEET

EXERCISE 1

Make x the subject of the following:

1. $2x = 5$
2. $7x = 21$
3. $Ax = B$
4. $Nx = T$
5. $Mx = K$
6. $xy = 4$
7. $Bx = C$
8. $4x = D$
9. $9x = \mathrm{T} + \mathrm{N}$
10. $Ax = B - R$
11. $Cx = R + T$
12. $Lx = N - R^2$
13. $R - S^2 = Nx$
14. $x + 5 = 7$
15. $x + 10 = 3$
16. $x + A = T$
17. $x + B = S$
18. $N = x + D$
19. $M = x + B$
20. $L = x + D^2$
21. $N^2 + x = T$
22. $L + x = N + M$
23. $Z + x = R - S$
24. $x - 5 = 2$
25. $x - R = A$
26. $x - A = E$
27. $F = x - B$
28. $F^2 = x - B^2$
29. $x - D = A + B$
30. $x - E = A^2$

Make y the subject of the following:

31. $L = y - B$
32. $N = y - T$
33. $3y + 1 = 7$
34. $2y - 4 = 5$
35. $Ay + C = N$
36. $By + D = L$
37. $Dy + E = F$
38. $Ny - F = H$
39. $Yy - Z = T$
40. $Ry - L = B$
41. $Vy + m = Q$
42. $ty - m = n + a$
43. $qy + n = s - t$
44. $ny - s^2 = t$
45. $V^2y + b = c$
46. $r = ny - 6$
47. $s = my + d$
48. $t = my - b$
49. $j = my + c$
50. $2(y + 1) = 6$
51. $3(y - 1) = 5$
52. $A(y + B) = C$
53. $D(y + E) = F$
54. $h(y + n) = a$
55. $b(y - d) = q$
56. $n = r(y + t)$
57. $t(y - 4) = b$
58. $z = S(y + t)$
59. $s = v(y - d)$
60. $g = m(y + n)$

EXERCISE 2

Make a the subject.

1. $\frac{a}{4} = 3$
2. $\frac{a}{5} = 2$
3. $\frac{a}{D} = B$
4. $\frac{a}{B} = T$
5. $\frac{a}{N} = R$
6. $b = \frac{a}{m}$
7. $\frac{a-2}{4} = 6$
8. $\frac{a-A}{B} = T$
9. $\frac{a-D}{N} = A$
10. $\frac{a+Q}{N} = B^2$
11. $g = \frac{a-r}{e}$
12. $\frac{2a+1}{5} = 2$
13. $\frac{Aa+B}{C} = D$
14. $\frac{na+m}{p} = q$
15. $\frac{ra-t}{S} = v$

16. $\frac{za-m}{q}=t$

17. $\frac{m+Aa}{b}=c$

18. $A=\frac{Ba+D}{E}$

19. $n=\frac{ea-f}{h}$

20. $q=\frac{ga+b}{r}$

21. $6-a=2$

22. $7-a=9$

23. $5=7-a$

24. $A-a=B$

25. $C-a=E$

26. $D-a=H$

27. $n-a=m$

28. $t=q-a$

29. $b=s-a$

30. $v=r-a$

31. $t=m-a$

32. $5-2a=1$

33. $T-Xa=B$

34. $M-Na=Q$

35. $V-Ma=T$

36. $L=N-Ra$

37. $r=v^2-ra$

38. $t^2=w-na$

39. $n-qa=2$

40. $\frac{3-4a}{2}=1$

41. $\frac{5-7a}{3}=2$

42. $\frac{B-Aa}{D}=E$

43. $\frac{D-Ea}{N}=B$

44. $\frac{h-fa}{b}=x$

45. $\frac{v^2-ha}{C}=d$

46. $\frac{M(a+B)}{N}=T$

47. $\frac{f(Na-e)}{m}=B$

48. $\frac{T(M-a)}{E}=F$

49. $\frac{y(x-a)}{z}=t$

50. $\frac{k^2(m-a)}{x}=x$

EXERCISE 3

Make a the subject.

1. $\frac{7}{a}=14$

2. $\frac{5}{a}=3$

3. $\frac{B}{a}=C$

4. $\frac{T}{a}=X$

5. $\frac{M}{a}=B$

6. $m=\frac{n}{a}$

7. $t=\frac{v}{a}$

8. $\frac{n}{a}=\sin 20^\circ$

9. $\frac{7}{a}=\cos 30^\circ$

10. $\frac{B}{a}=x$

11. $\frac{5}{a}=\frac{3}{4}$

12. $\frac{N}{a}=\frac{B}{D}$

13. $\frac{H}{a}=\frac{N}{M}$

14. $\frac{t}{a}=\frac{b}{e}$

15. $\frac{v}{a}=\frac{m}{s}$

16. $\frac{t}{b}=\frac{m}{a}$

17. $\frac{5}{a+1}=2$

18. $\frac{7}{a-1}=3$

19. $\frac{B}{a+D}=C$

20. $\frac{Q}{a-C}=T$

21. $\frac{V}{a-T}=D$

22. $\frac{L}{Ma}=B$

23. $\frac{N}{Ba}=C$

24. $\frac{m}{ca}=d$

25. $t=\frac{b}{c-a}$

26. $x=\frac{z}{y-a}$

Make x the subject.

27. $\frac{2}{x}+1=3$
28. $\frac{5}{x}-2=4$
29. $\frac{A}{x}+B=C$
30. $\frac{V}{x}+G=H$
31. $\frac{r}{x}-t=n$
32. $q=\frac{b}{x}+d$
33. $t=\frac{m}{x}-n$
34. $h=d-\frac{b}{x}$
35. $C-\frac{d}{x}=e$
36. $r-\frac{m}{x}=e^2$
37. $t^2=b-\frac{n}{x}$
38. $\frac{d}{x}+b=mn$
39. $\frac{M}{x+q}-N=0$
40. $\frac{Y}{x-c}-T=0$
41. $3M=M+\frac{N}{P+x}$
42. $A=\frac{B}{c+x}-5A$
43. $\frac{K}{Mx}+B=C$
44. $\frac{z}{xy}-z=y$
45. $\frac{m^2}{x}-n=-p$
46. $t=w-\frac{q}{x}$

EXERCISE 4

Make x the subject.

1. $\sqrt{x}=2$
2. $\sqrt{(x+1)}=5$
3. $\sqrt{(x-2)}=3$
4. $\sqrt{(x+a)}=B$
5. $\sqrt{(x+C)}=D$
6. $\sqrt{(x-E)}=H$
7. $\sqrt{(ax+b)}=c$
8. $\sqrt{(x-m)}=a$
9. $b=\sqrt{(gx-t)}$
10. $r=\sqrt{(b-x)}$
11. $\sqrt{(d-x)}=t$
12. $b=\sqrt{(x-d)}$
13. $c=\sqrt{(n-x)}$
14. $f=\sqrt{(b-x)}$
15. $g=\sqrt{(c-x)}$
16. $\sqrt{(M-Nx)}=P$
17. $\sqrt{(Ax+B)}=\sqrt{D}$
18. $\sqrt{(x-D)}=A^2$
19. $x^2=g$
20. $x^2+1=17$
21. $x^2=B$
22. $x^2+A=B$
23. $x^2-A=M$
24. $b=a+x^2$
25. $C-x^2=m$
26. $n=d-x^2$
27. $mx^2=n$
28. $b=ax^2$

Make k the subject.

29. $\frac{kz}{a}=t$
30. $ak^2-t=m$
31. $n=a-k^2$
32. $\sqrt{(k^2-4)}=6$
33. $\sqrt{(k^2-A)}=B$
34. $\sqrt{(k^2+y)}=x$
35. $t=\sqrt{(m+k^2)}$
36. $2\sqrt{(k+1)}=6$
37. $A\sqrt{(k+B)}=M$
38. $\sqrt{\left(\frac{M}{k}\right)}=N$
39. $\sqrt{\left(\frac{N}{k}\right)}=B$
40. $\sqrt{(a-k)}=b$
41. $\sqrt{(a^2-k^2)}=t$
42. $\sqrt{(m-k^2)}=x$
43. $2\pi\sqrt{(k+t)}=4$
44. $A\sqrt{(k+1)}=1$
45. $\sqrt{(ak^2-b)}=C$
46. $a\sqrt{(k^2-x)}=b$
47. $k^2+b=x^2$
48. $\frac{k^2}{a}+b=c$
49. $\sqrt{(c^2-ak)}=b$
50. $\frac{m}{k^2}=a+b$

EXERCISE 5

Make y the subject.

1. $5(y-1)=2(y+3)$
2. $7(y-3)=4(3-y)$
3. $Ny+B=D-Ny$
4. $My-D=E-2My$
5. $ay+b=3b+by$
6. $my-c=e-ny$
7. $xy+4=7-ky$
8. $Ry+D=Ty+C$
9. $ay-x=z+by$
10. $m(y+a)=n(y+b)$
11. $x(y-b)=y+d$
12. $\frac{a-y}{a+y}=b$

13. $\frac{1-y}{1+y}=\frac{c}{d}$

14. $\frac{M-y}{M+y}=\frac{a}{b}$

15. $m(y+n)=n(n-y)$

16. $y+m=\frac{2y-5}{m}$

17. $y-n=\frac{y+2}{n}$

18. $y+b=\frac{ay+e}{b}$

19. $\frac{ay+x}{x}=4-y$

20. $c-dy=e-ay$

21. $y(a-c)=by+d$

22. $y(m+n)=a(y+b)$

23. $t-ay=s-by$

24. $\frac{y+x}{y-x}=3$

25. $\frac{v-y}{v+y}=\frac{1}{2}$

26. $y(b-a)=a(y+b+c)$

27. $\sqrt{\left(\frac{y+x}{y-x}\right)}=2$

28. $\sqrt{\left(\frac{z+y}{z-y}\right)}=\frac{1}{3}$

29. $\sqrt{\left[\frac{m(y+n)}{y}\right]}=p$

30. $n-y=\frac{4y-n}{m}$

EXERCISE 6

Make the letter in square brackets the subject.

1. $ax+by+c=0$ [x]

2. $\sqrt{\{a(y^2-b)\}}=e$ [y]

3. $\frac{\sqrt{(k-m)}}{n}=\frac{1}{m}$ [k]

4. $a-bz=z+b$ [z]

5. $\frac{x+y}{x-y}=2$ [x]

6. $\sqrt{\left(\frac{a}{z}-c\right)}=e$ [z]

7. $lm+mn+a=0$ [n]

8. $t=2\pi\sqrt{\left(\frac{d}{g}\right)}$ [d]

9. $t=2\pi\sqrt{\left(\frac{d}{g}\right)}$ [g]

10. $\sqrt{(x^2+a)}=2x$ [x]

11. $\sqrt{\left\{\frac{b(m^2+a)}{e}\right\}}=t$ [m]

12. $\sqrt{\left(\frac{x+1}{x}\right)}=a$ [x]

13. $a+b-mx=0$ [m]

14. $\sqrt{(a^2+b^2)}=x^2$ [a]

15. $\frac{a}{k}+b=\frac{c}{k}$ [k]

16. $a-y=\frac{b+y}{a}$ [y]

17. $G=4\pi\sqrt{(x^2+T^2)}$ [x]

18. $M(ax+by+c)=0$ [y]

19. $x=\sqrt{\left(\frac{y-1}{y+1}\right)}$ [y]

20. $a\sqrt{\left(\frac{x^2-n}{m}\right)}=\frac{a^2}{b}$ [x]

21. $\frac{M}{N}+E=\frac{P}{N}$ [N]

22. $\frac{Q}{P-x}=R$ [x]

23. $\sqrt{(z-ax)}=t$ [a]

24. $e+\sqrt{(x+f)}=g$ [x]

25. $\frac{m(ny-e^2)}{p}+n=5n$ [y]