Changing the Subject of a Formula

Exercise A

Make a the subject.

1. $\dfrac{a}{4} = 3$

2. $\dfrac{a}{5} = 2$

3. $\dfrac{a}{D} = B$

4. $\dfrac{a}{B} = T$

5. $\dfrac{a}{N} = R$

6. $b = \dfrac{a}{m}$

7. $\dfrac{a-2}{4} = 6$

8. $\dfrac{a-A}{B} = T$

9. $\dfrac{a-D}{N} = A$

10. $\dfrac{a+Q}{N} = B^2$

11. $g = \dfrac{a-r}{e}$

12. $\dfrac{2a+1}{5} = 2$

13. $\dfrac{Aa+B}{C} = D$

14. $\dfrac{na+m}{p} = q$

15. $\dfrac{ra-t}{S} = v$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Exercise B

Make a the subject.

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

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

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

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

5. $t = \dfrac{v}{a}$

6. $\dfrac{n}{a} = \sin 20°$

7. $\dfrac{7}{a} = \cos 30°$

8. $\dfrac{B}{a} = x$

9. $\dfrac{v}{a} = \dfrac{m}{s}$

10. $\dfrac{t}{b} = \dfrac{m}{a}$

11. $\dfrac{B}{a+D} = C$

12. $\dfrac{Q}{a-C} = T$

13. $\dfrac{V}{a-T} = D$

14. $\dfrac{L}{Ma} = B$

15. $\dfrac{N}{Ba} = C$

16. $\dfrac{m}{ca} = d$

17. $t = \dfrac{b}{c-a}$

18. $x = \dfrac{z}{y-a}$

Make x the subject.

19. $\dfrac{2}{x} + 1 = 3$

20. $\dfrac{5}{x} - 2 = 4$

21. $\dfrac{A}{x} + B = C$

22. $\dfrac{V}{x} + G = H$

23. $\dfrac{r}{x} - t = n$

24. $q = \dfrac{b}{x} + d$

25. $t = \dfrac{m}{x} - n$

26. $h = d - \dfrac{b}{x}$

27. $C - \dfrac{d}{x} = e$ **28.** $r - \dfrac{m}{x} = e^2$ **29.** $t^2 = b - \dfrac{n}{x}$ **30.** $\dfrac{d}{x} + b = mn$

31. $3M = M + \dfrac{N}{P + x}$ **32.** $A = \dfrac{B}{c + x} - 5A$ **33.** $\dfrac{m^2}{x} - n = -p$ **34.** $t = w - \dfrac{q}{x}$

Exercise C

Make x the subject.

1. $\sqrt{x} = 2$ **2.** $\sqrt{(x - 2)} = 3$ **3.** $\sqrt{(x + C)} = D$ **4.** $\sqrt{(ax + b)} = c$
5. $b = \sqrt{(gx - t)}$ **6.** $\sqrt{(d - x)} = t$ **7.** $c = \sqrt{(n - x)}$ **8.** $g = \sqrt{(c - x)}$
9. $\sqrt{(Ax + B)} = \sqrt{D}$ **10.** $x^2 = g$ **11.** $x^2 = B$ **12.** $x^2 - A = M$

Make k the subject.

13. $C - k^2 = m$ **14.** $mk^2 = n$ **15.** $\dfrac{kz}{a} = t$ **16.** $n = a - k^2$

17. $\sqrt{(k^2 - A)} = B$ **18.** $t = \sqrt{(m + k^2)}$ **19.** $A\sqrt{(k + B)} = M$ **20.** $\sqrt{\left(\dfrac{N}{k}\right)} = B$

21. $\sqrt{(a^2 - k^2)} = t$ **22.** $2\pi\sqrt{(k + t)} = 4$ **23.** $\sqrt{(ak^2 - b)} = C$ **24.** $k^2 + b = x^2$

Exercise D

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.** $\dfrac{a - y}{a + y} = b$

13. $\dfrac{1 - y}{1 + y} = \dfrac{c}{d}$ **14.** $\dfrac{M - y}{M + y} = \dfrac{a}{b}$ **15.** $m(y + n) = n(n - y)$

16. $y + m = \dfrac{2y - 5}{m}$ **17.** $y - n = \dfrac{y + 2}{n}$ **18.** $y + b = \dfrac{ay + e}{b}$

19. $\dfrac{ay + x}{x} = 4 - y$ **20.** $c - dy = e - ay$ **21.** $y(a - c) = by + d$

22. $y(m + n) = a(y + b)$ **23.** $t - ay = s - by$ **24.** $\dfrac{y + x}{y - x} = 3$

25. $\dfrac{v - y}{v + y} = \dfrac{1}{2}$ **26.** $y(b - a) = a(y + b + c)$ **27.** $\sqrt{\left(\dfrac{y + x}{y - x}\right)} = 2$

28. $\sqrt{\left(\dfrac{z + y}{z - y}\right)} = \dfrac{1}{3}$ **29.** $\sqrt{\left[\dfrac{m(y + n)}{y}\right]} = p$ **30.** $n - y = \dfrac{4y - n}{m}$