# Changing the Subject with Higher Powers, Roots Including Brackets and Fractions: Mini Exercises

## Mini-Exercise 1

Make $x$ the subject of the following:

1. $a = bx^3$
2. $\frac{\sqrt[4]{x}}{2c} = d$
3. $x^6 - 3 = 5e$
4. $f = \frac{g\sqrt[9]{x}}{3}$
5. $7z + x^{11} = wy$
6. $h = 2x^{15} + 5i$
7. $\frac{j\sqrt[18]{x}}{2k} + 7 = l$
8. $10 - x^{21} = m$
9. $n = 2p - 5\sqrt[27]{x}$
10. $3q^2 - \frac{2rx^{29}}{s} = t$

## Mini-Exercise 2

Make $x$ the subject of the following:

1. $a = b(x^2 - c)$
2. $7d = ef(3g + \sqrt[7]{x})$
3. $2(h - \sqrt[10]{x}) = 3i$
4. $j^2 = k(2x^{17} - 3)$
5. $3l(2m - 4x^{20}) = 2n$
6. $8p\left(3q - \frac{3}{2}\sqrt[9]{x}\right) = r$

## Mini-Exercise 3

Make $x$ the subject of the following:

1. $(x + a)^2 = b$
2. $y = \sqrt[7]{x + b}$
3. $e = \sqrt{\frac{2x}{f}}$
4. $s(3x - t)^4 = v$
5. $d = \sqrt[5]{7x} - f$
6. $2l = m\sqrt{x - 3}$
7. $(3x)^2 + g = h^2$
8. $2(x - t)^3 - u = r$

☠ $y = 1 - \sqrt{1 - \sqrt{1 - x}}$

## Mini-Exercise 4

Make $x$ the subject of the following:

1. $a = \frac{b + x^2}{c}$
2. $\frac{e^2 + \sqrt[5]{x}}{4f} = 2d$
3. $g = \frac{3x^2 + 1}{h}$
4. $\frac{1 - x^5}{7} = j$
5. $k = \frac{3}{2l}(\sqrt[8]{x} - m)$
6. $\frac{\sqrt[6]{2x - 1}}{n} = 3p$
7. $\frac{4}{7}(2 - x)^3 = p^2$
8. $9q = \frac{7(1 - x^7)}{5}$
9. $rs = \frac{t(u - 4\sqrt{x})}{9}$

☠ $3v = \frac{2w\sqrt[11]{3 - 5x^{15}}}{z^5}$


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