RATIONAL & NEGATIVE EXPONENTS
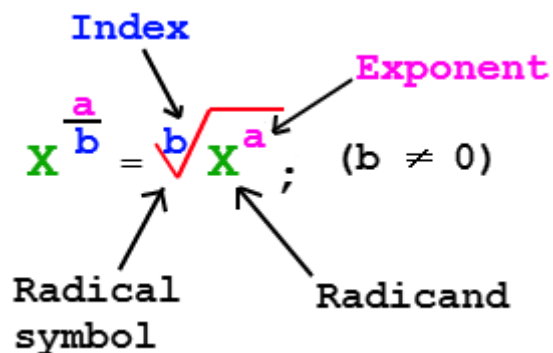
1. Find the value of each of the following:

(a) $8\sqrt{7} + 9(1 - 2\sqrt{3}) + 5\sqrt{7}$

(b) $3\sqrt{14}\,\sqrt{56}$

(c) $\sqrt{\dfrac{1+3+5}{1+4+11}}$

(d) $\sqrt[3]{125}$

(e) $\sqrt[3]{-8}$

(f) $\sqrt[3]{125}$

(g) $16^{3/4}$

(h) $4^{-5/2}$

(i) $125^{2/3}$

(j) $8^{-2/3}$

(k) $36^{-3/2}$

(l) $(1 + \sqrt{3})(1 - \sqrt{3})$

(m) $(\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3})$

(n) $(4 + 5\sqrt{3})(4 - 5\sqrt{3})$

(o) $\dfrac{1}{25^{-2}}$

(p) $\dfrac{\sqrt{81}\sqrt{16}}{\sqrt{225}}$

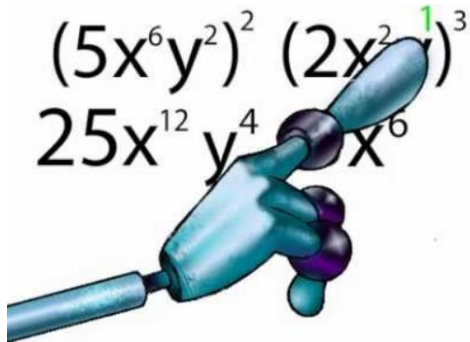(q) $243^{2/5}$

(r) $(8/27)^{-1/3}$

(s) $(81/16)^{3/4}$

(t) $(32/243)^{-7/5}$

2. Express with positive indices:

(a) $2x^{-1/4}$

(b) $3a^{-2/3}$

(c) $4x^{-2}a^3$

(d) $3/a^{-2}$

(e) $1/(4a^{-2})$

(f) $1/(5x^{-1/2})$

(g) $3a^{-3}x^2/(5y^2c^{-4})$

(h) $(2x^{1/2})(3x^{-1})$

(i) $(a-2x-1)/(b-3)$

3. Rationalize the denominator.

(a) $\dfrac{1}{\sqrt{2}}$

(b) $\dfrac{1}{1+\sqrt{2}}$

(c) $\dfrac{3}{3-\sqrt{5}}$

(d) $\dfrac{\sqrt{2}}{1+\sqrt{2}}$

$$\frac{(5x^6y^2)^2 \ (2x^2y^1)^3}{25x^{12}y^4 \ x^6}$$