

Quick Review 1.3

1 Simplify each of the following:

(a) $(16a^6b^2c)^{\frac{1}{2}}$

(b) $\sqrt{(\sqrt{16x^4})}$

(c) $(25a^2b^3c^4)^{\frac{1}{2}}$

(d) $\left(\frac{36x^6}{25}\right)^{\frac{1}{2}}\left(\frac{x}{2}\right)^3$

(e) $\frac{2^{n+2} + 12}{5 \times 2^n + 15}$

(f) $\frac{3^{n+1} + 9}{3^{n-1} + 1}$

2 Solve each of the following equations:

(a) $2^x = 16$

(b) $\left(\frac{1}{5}\right)^x = 125$

(c) $x^{\frac{2}{3}} = 25$

(d) $\frac{x^{-\frac{3}{2}}}{\sqrt{x}} = 16$

3 Solve each following equations:

(a) $(2^2)^x = 32$

(b) $3^{x+1} = \frac{27}{3^x}$

(c) $16^{x+2} = 128$

(d) $3x^{\frac{1}{2}} + 2x^{\frac{1}{2}} = 15$

4 Solve each of the following equations:

(a) $27^x = 9^{1-2y}$
 $3y = 3^{2x-5}$

(b) $32^{x-3} = 4^{-y}$
 $16^{2x} = \frac{1}{2^{3y+1}}$

(c) $4^x = 8^{1-2y}$
 $4^{3x} = 2^{5-26y}$

(d) $4^y = 32^{5-x}$
 $16^y = 8^{5-x}$

5 Solve each of the following equations:

(a) $2(4^x) - 9(2^x) + 4 = 0$

(b) $2^{2x+3} - 17(2^x) + 2 = 0$

6 Solve each of the following equations:

(a) $4x^{\frac{1}{n}} - 33x^{\frac{1}{2n}} + 8 = 0$

(b) $3\sqrt{x} + 9x^{-\frac{1}{2}} = 28$

(c) $\sqrt{3^x} + \frac{27}{\sqrt{3^x}} = 12$

(d) $\sqrt{5^x} + \frac{5}{\sqrt{5^x}} = 26$

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1 (a) $4a^3bc^{\frac{1}{2}}$ (c) $5ab^{\frac{3}{2}}c^2$ (e) $\frac{4}{5}$

(b) $2x^2$ (d) $\frac{3}{20}x^6$ (f) 9

2 (a) 4 (b) -3 (c) ± 125 (d) $\frac{1}{4}$

3 (a) 2.5 (b) 1 (c) $-\frac{1}{4}$ (d) 9

4 (a) $x = 2, y = -1$ (c) $x = 3, y = -\frac{1}{2}$

(b) $x = -47, y = 125$ (d) $x = 5, y = 0$

5 (a) -1 or 2 (b) -3 or 1

6 (a) 2^{-4n} or 2^{6n} (c) 2 or 4

(b) $\frac{1}{9}$ or 81 (d) -2 or 2