

Worksheet #4—Intermediate Arithmetic Radical Problems

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Simplify each of the following.

(1) $\sqrt{8}$

(2) $\sqrt{18}$

(3) $2\sqrt{9}$

(4) $\sqrt{12}$

(5) $\sqrt{50}$

(6) $\sqrt{2}\sqrt{8}$

(7) $\sqrt{144}$

(8) $3\sqrt{8}$

(9) $2\sqrt{8}$

(10) $\sqrt{2}\sqrt{3}$

(11) $\sqrt[5]{32}$

(12) $\sqrt[4]{81}$

(13) $-\sqrt{4}$

(14) $\sqrt{288}$

(15) $\sqrt[3]{27}$

(16) $\sqrt{72}$

(17) $\sqrt{4\sqrt{16}}$

(18) $\sqrt{18}\sqrt{50}$

(19) $\sqrt{98}$

(20) $\sqrt{20}$

(21) $\sqrt{\frac{4}{9}}$

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

(23) $\sqrt{12}\sqrt{2}$

(24) $\sqrt[3]{1}$

(25) $\sqrt{98}$

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

(27) $\sqrt{9} + \sqrt{16}$

(28) $\sqrt{\sqrt{64}}$

(29) $\sqrt{1 + \sqrt{9}}$

(30) $\sqrt[3]{8}$

(31) $\sqrt[3]{2}\sqrt[3]{4}$

(32) $\sqrt{24}$

(33) $\sqrt{96}$

(34) $\sqrt{45}$

(35) $\sqrt{63}$

(36) $\sqrt{121} - \sqrt{100}$

(37) $\frac{\sqrt{100}}{\sqrt{25}}$

(38) $\sqrt{44}$

(39) $\sqrt{32}$

(40) $\sqrt{225}$

(41) $\sqrt{450}$

(42) $\sqrt{48}$

(43) $\sqrt{\sqrt{144} + 4}$

(44) $\sqrt{192}$

(45) $\sqrt{75}$

(46) $\sqrt{216}$

(47) $\sqrt{99}$

(48) $\sqrt{\sqrt{9} - \sqrt{4}}$

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

(50) $\sqrt[4]{81}$

(51) $\sqrt{0}$

(52) $\sqrt{\sqrt{16}\sqrt{4}}$

(53) $\frac{1}{\sqrt{5}}$

(54) $\sqrt[3]{16}$

$$(55) 3\sqrt{2} + \sqrt{8}$$

$$(58) \sqrt{9} + \sqrt[3]{27}$$

$$(61) \frac{6}{\sqrt{12}}$$

$$(64) \sqrt[3]{81}$$

$$(67) \sqrt{8}\sqrt{12}$$

$$(70) \frac{\sqrt{32}}{4}$$

$$(56) \frac{4}{\sqrt{2}}$$

$$(59) \sqrt{\frac{1}{3}}$$

$$(62) \sqrt{\frac{4}{5}}$$

$$(65) \sqrt[4]{16}$$

$$(68) \sqrt{2}\sqrt{18}$$

$$(71) 4\sqrt{50}$$

$$(57) \sqrt{2 + \sqrt{16}}$$

$$(60) \sqrt{8}\sqrt[3]{8}$$

$$(63) \frac{\sqrt{3}}{\sqrt{12}}$$

$$(66) \sqrt[6]{1}$$

$$(69) \sqrt{2} + \sqrt{18}$$

$$(72) \sqrt{25} + 4$$

Answers: (1) $2\sqrt{2}$ (2) $3\sqrt{2}$ (3) 6 (4) $2\sqrt{3}$ (5) $5\sqrt{2}$ (6) 4 (7) 12
(8) $6\sqrt{2}$ (9) $4\sqrt{2}$ (10) $\sqrt{6}$ (11) 2 (12) 3 (13) -2 (14) $12\sqrt{2}$ (15) 3
(16) $6\sqrt{2}$ (17) 4 (18) 30 (19) $7\sqrt{2}$ (20) $2\sqrt{5}$ (21) $\frac{2}{3}$ (22) -2 (23) $2\sqrt{6}$
(24) 1 (25) $7\sqrt{2}$ (26) 5 (27) 7 (28) $2\sqrt{2}$ (29) 2 (30) 2 (31) 2
(32) $2\sqrt{6}$ (33) $4\sqrt{6}$ (34) $3\sqrt{5}$ (35) $3\sqrt{7}$ (36) 1 (37) 2 (38) $2\sqrt{11}$
(39) $4\sqrt{2}$ (40) 15 (41) $15\sqrt{2}$ (42) $4\sqrt{3}$ (43) 4 (44) $8\sqrt{3}$ (45) $5\sqrt{3}$
(46) $6\sqrt{6}$ (47) $3\sqrt{11}$ (48) 1 (49) 5 (50) 3 (51) 0 (52) $2\sqrt{2}$ (53) $\frac{\sqrt{5}}{5}$
(54) $2\sqrt[3]{2}$ (55) $5\sqrt{2}$ (56) $2\sqrt{2}$ (57) $\sqrt{6}$ (58) 6 (59) $\frac{\sqrt{3}}{3}$ (60) $4\sqrt{2}$
(61) $\sqrt{3}$ (62) $\frac{2\sqrt{5}}{5}$ (63) $\frac{1}{2}$ (64) $3\sqrt[3]{3}$ (65) 2 (66) 1 (67) $4\sqrt{6}$ (68) 6
(69) $4\sqrt{2}$ (70) $\sqrt{2}$ (71) $20\sqrt{2}$ (72) 9