

05 – Radicals – practice problems

A			
1.	$\sqrt{64} =$	2.	$\sqrt{144} =$
3.	$\sqrt{169} =$	4.	$\sqrt{196} =$
5.	The quantity $\sqrt{105}$ is between which two integers?	6.	The quantity $\sqrt{175}$ is between which two integers?
7.	$\sqrt{3}\sqrt{12} =$	8.	$\sqrt{8}\sqrt{2} =$
9.	$\frac{\sqrt{32}}{\sqrt{2}} =$	10.	$\frac{\sqrt{45}}{\sqrt{5}} =$
11.	$\sqrt{5}\sqrt{5} =$	12.	$\sqrt{347}\sqrt{347} =$
13.	$(3\sqrt{5})^2 =$	14.	$(2\sqrt{5})(3\sqrt{5}) =$
15.	$(3\sqrt{12})(2\sqrt{3}) =$	16.	$\sqrt{16} + \sqrt{9} =$
17.	$\sqrt{100 - 36} =$	18.	$\sqrt{100} - \sqrt{36} =$
19.	$\sqrt{\frac{16}{25}} =$	20.	$\sqrt{\frac{49}{64}} =$
21.	$(3\sqrt{5})(2\sqrt{7}) =$	22.	$(5\sqrt{2})(3\sqrt{7}) =$
B. Simplify			
1.	$\sqrt{50} =$	2.	$\sqrt{8} =$
3.	$\sqrt{27} =$	4.	$7\sqrt{45} =$
5.	$\sqrt{288} =$	6.	$\sqrt{108} =$
7.	$\sqrt{243} =$	8.	$\sqrt{128} =$
9.	$\sqrt{27x^{11}y^4}$	10.	$\sqrt[3]{54x^7y^{14}}$

C.	Combine.		
1.	$\sqrt{2} + 3\sqrt{2} =$	2.	$\sqrt{25} - 5\sqrt{7} + 10 + 3\sqrt{7} =$
3.	$\sqrt{20} + 3\sqrt{5} =$	4.	$5\sqrt{98} + 3\sqrt{2} =$
5.	$\sqrt{75} + \sqrt{27} =$	6.	$4\sqrt{45} - 3\sqrt{20} =$
7.	$3\sqrt{48} - 2\sqrt{27} =$	8.	$3\sqrt{50} + \sqrt{32} =$
9.	$4\sqrt[3]{24} + 2\sqrt[3]{375} =$	10.	$\sqrt[3]{16} + 4\sqrt[3]{54} =$
D.	Multiply		
1.	$3\sqrt{5}(4 + 2\sqrt{5}) =$	2.	$5\sqrt{2}(8 - 3\sqrt{7}) =$
3.	$3\sqrt{7}(2 - \sqrt{2}) =$	4.	$(3 - 4\sqrt{2})(2 + \sqrt{2}) =$
E.	Simplify		
1.	$(\sqrt{5x^5y^3})(\sqrt{20xy^7}) =$	2.	$\frac{\sqrt{32x^5}}{\sqrt{2x^7}} =$
F.	Rationalize the denominator		
1.	$\frac{5}{2-3\sqrt{2}} =$	2.	$\frac{1+\sqrt{3}}{2-\sqrt{3}} =$

Answers: A. 1. 8 2. 12 3. 13 4. 14 5. 10 and 11 6. 13 and 14 7. 6 8. 4 9. 4 10. 3 11. 5 12. 347 13. 45 14. 30 15. 36 16. 7 17. 8 18. 4 19. 4/5 20. 7/8 21. $6\sqrt{35}$ 22. $15\sqrt{14}$

B. 1. $5\sqrt{2}$ 2. $2\sqrt{2}$ 3. $3\sqrt{3}$ 4. $21\sqrt{5}$ 5. $12\sqrt{2}$ 6. $6\sqrt{3}$ 7. $9\sqrt{3}$ 8. $8\sqrt{2}$ 9. $3x^5y^2\sqrt{3x}$ 10. $3x^2y^4\sqrt[3]{2xy^2}$

C. 1. $4\sqrt{2}$ 2. $15 - 2\sqrt{7}$ 3. $5\sqrt{5}$ 4. $38\sqrt{2}$ 5. $8\sqrt{3}$ 6. $6\sqrt{5}$ 7. $6\sqrt{3}$ 8. $19\sqrt{2}$ 9. $18\sqrt[3]{3}$ 10. $14\sqrt[3]{2}$

D. 1. $30 + 12\sqrt{5}$ 2. $40\sqrt{2} - 15\sqrt{14}$ 3. $6\sqrt{7} - 3\sqrt{14}$ 4. $-2 - 5\sqrt{2}$

E. 1. $10x^3y^5$ **2.** $\frac{4}{x}$

F. 1. $\frac{10+15\sqrt{2}}{-14}$ **2.** $5 + 3\sqrt{3}$