

WORKSHEET # 12 [9.1, 9.4, & 9.5]

Evaluate:

1. $\sqrt{196}$
 [A] 196 [B] -14 [C] -196 [D] 14

2. $\sqrt{\frac{25}{81}}$

Simplify:

3. $\sqrt{\frac{9}{64}}$ [A] $\frac{3}{32}$ [B] $\frac{3}{8}$ [C] $\frac{3}{64}$ [D] $\frac{1}{2}$

4. $\sqrt{\frac{25}{36}}$

5. Find the number whose square root is 11.

[A] $\frac{11}{2}$ [B] 121 [C] 22 [D] $\sqrt{11}$

6. Simplify: $\sqrt[3]{-8}$

[A] -6 [B] Not a real number.
 [C] -2 [D] 2

7. Evaluate: $\sqrt[3]{-8}$

8. Simplify: $\sqrt[3]{-\frac{8}{343}}$

9. Simplify: $\sqrt[4]{\frac{1}{81}}$

[A] $\frac{1}{9}$ [B] $\frac{1}{3}$ [C] $\frac{4}{81}$ [D] $\frac{1}{324}$

10. Simplify: $-\sqrt[4]{16}$

[A] -2 [B] 2
 [C] 8 [D] Not a real number.

11. $\sqrt{15}$ is between what two consecutive whole numbers?

[A] 2 and 3 [B] 4 and 5
 [C] 3 and 4 [D] 14 and 15

Simplify:

12. $\sqrt[3]{128a^5b^3}$

[A] $4ab\sqrt{2a^2}$ [B] $4ab\sqrt[3]{2ab}$
 [C] $4a^3b^3\sqrt[3]{2a^2}$ [D] $4ab\sqrt[3]{2a^2}$

13. $\sqrt[3]{24a^5b^6}$

[A] $2ab^2\sqrt[3]{3ab}$ [B] $2a^3b^6\sqrt[3]{3a^2}$
 [C] $2ab^2\sqrt[3]{3a^2}$ [D] $2ab^2\sqrt{3a^2}$

14. $\sqrt[5]{x^7y^{24}}$

[A] $x^2y^{19}\sqrt{xy}$ [B] $xy^4\sqrt[5]{x^2y^4}$
 [C] $x^2y^4\sqrt[5]{xy^4}$ [D] $xy^4\sqrt{x^2y^4}$

15. $\sqrt[4]{x^{11}y^{15}}$

16. $\sqrt[3]{x^6}$

17. $\sqrt{600}$

[A] $20\sqrt{6}$ [B] $5\sqrt{6}$
 [C] $150\sqrt{2}$ [D] $10\sqrt{6}$

18. Use the quotient rule for radicals to simply the expression:

$$\frac{\sqrt{x^4}}{\sqrt{36y^4}}$$

[A] $\frac{x^2}{6y^2}$ [B] $\frac{x^3}{6y^4}$ [C] $\frac{x^3}{8y^4}$ [D] $\frac{x^2}{8y^2}$

Simplify:

19. $\sqrt{27x^9y^6}$

[A] $9x^8y^3\sqrt{3xy}$

[B] $x\sqrt{3x}$

[C] $3xy^3\sqrt{27x}$

[D] $3x^4y^3\sqrt{3x}$

20. $\sqrt[3]{128}$

[A] $16\sqrt[3]{8}$ [B] $4\sqrt[3]{2}$ [C] $4\sqrt[3]{8}$ [D] $2\sqrt[3]{4}$

21. $8\sqrt{7} + 7\sqrt{7} - 4\sqrt{7}$

22. $9\sqrt{2} + 2\sqrt{2} - 4\sqrt{2}$

[A] $15\sqrt{2}$ [B] $\sqrt{14}$ [C] $7\sqrt{2}$ [D] 14

23. $\sqrt{32} + \sqrt{50}$

[A] $9\sqrt{2}$ [B] $2\sqrt{9}$ [C] $45\sqrt{2}$ [D] $\sqrt{82}$

24. $6\sqrt{9x} - 3\sqrt{16x}$

25. Multiply: $(4 - \sqrt{3})(4 + \sqrt{3})$

[A] $13 - 8\sqrt{3}$

[B] 19

[C] 13

[D] $19 - 8\sqrt{3}$

Simplify:

26. $-8\sqrt{7} - 3\sqrt{9} + 8\sqrt{28}$

[A] $-\sqrt{7}$

[B] $-3\sqrt{44}$

[C] $8\sqrt{7} - 9$

[D] $8\sqrt{7} - 9 + 8\sqrt{28}$

27. $-5\sqrt{2} - 2\sqrt{81} + 2\sqrt{32}$

28. Find the product and completely simplify the radical: $\sqrt{6}\sqrt{60}$

[A] $9\sqrt{20}$

[B] $3\sqrt{40}$

[C] $12\sqrt{10}$

[D] $6\sqrt{10}$

29. Multiply: $\sqrt{6x}(\sqrt{x} - 8\sqrt{6})$

[A] $x\sqrt{6} - 48\sqrt{6}$

[B] $30x - 48$

[C] $x\sqrt{6} - 48\sqrt{x}$

[D] $5\sqrt{6x^2} - 8\sqrt{6}$

Simplify:

30. $\frac{\sqrt{36x^9}}{\sqrt{4}}$

[A] $9\sqrt{4x^9}$

[B] $3x^9$

[C] $9x^4$

[D] $3x^4\sqrt{x}$

31. $\frac{\sqrt{7xy^4}}{\sqrt{28x^3}}$

32. $\sqrt{\frac{2x^8y^7}{8z}}$

Divide:

33. $\frac{12\sqrt{7} + 44\sqrt{42}}{4\sqrt{7}}$

34. $\frac{30\sqrt{4} + 55\sqrt{20}}{5\sqrt{4}}$

35. Rationalize the denominator and simplify: $\frac{\sqrt{21}}{\sqrt{7}}$

[A] 3

[B] $\sqrt{3}$

[C] 14

[D] $\sqrt{14}$

36. Rationalize the denominator: $\frac{4}{\sqrt{13}}$

37. Divide: $\frac{15}{\sqrt{7}} =$

[A] $15\sqrt{7}$

[B] $\frac{\sqrt{15}}{7}$

[C] $\frac{15\sqrt{7}}{7}$

[D] $\frac{15\sqrt{7}}{49}$

Simplify:

38. $\frac{6}{8 - \sqrt{7}}$

[A] $\frac{36}{71}$

[B] $\frac{16 + 2\sqrt{7}}{19}$

[C] $\frac{48 + 6\sqrt{7}}{71}$

[D] $\frac{48 + \sqrt{7}}{57}$

39. $\frac{6 - \sqrt{5}}{6 + \sqrt{5}}$

[A] $\frac{41 - 12\sqrt{5}}{31}$

[B] $\frac{6\sqrt{5} - 5}{6\sqrt{5} + 5}$

[C] $\frac{31}{41}$

[D] $\frac{6 - 5\sqrt{5}}{41}$

40. Rationalize the denominator: $\frac{9}{\sqrt{x} - 3\sqrt{y}}$