

Radicals High School Common Core: Number & Quantity – The Real Number System – Use properties of rational and irrational numbers.

Name: _____

Pd: _____ Date: _____

Exam Questions (No calculator)

1. Fill out the given table with perfect square.

| | |
|--------------|------|
| $\sqrt{1}$ | = 1 |
| $\sqrt{4}$ | = 2 |
| $\sqrt{9}$ | = 3 |
| $\sqrt{16}$ | = 4 |
| $\sqrt{25}$ | = 5 |
| $\sqrt{36}$ | = 6 |
| $\sqrt{49}$ | = 7 |
| $\sqrt{64}$ | = 8 |
| $\sqrt{81}$ | = 9 |
| $\sqrt{100}$ | = 10 |

2. Simplify $-4\sqrt{81}$

- A) $-4\sqrt{9}$ B) $-4\sqrt{3}$
 C) -12 **D) -36**

3. Simplify $-\sqrt{25a^3}$

$5a\sqrt{a}$

4. Simplify $9\sqrt{2} - 3\sqrt{18}$

- A) $-\sqrt{2}$ **B) 0** C) $2\sqrt{2}$ D) $6\sqrt{3}$

5. Simplify $(-2\sqrt{10})(5\sqrt{6})$

$-20\sqrt{15}$

6. Simplify $\frac{4\sqrt{72} + \sqrt{18}}{\sqrt{7}}$

$\frac{27\sqrt{14}}{7}$

7. Simplify $\frac{3\sqrt{64}}{2}$

- A) $\frac{3\sqrt{8}}{2}$ **B) 12**
 C) $3\sqrt{32}$ D) $12\sqrt{2}$

8. Simplify

$-2\sqrt{3} (3\sqrt{5} - 4\sqrt{7})$

$-6\sqrt{15} + 8\sqrt{21}$

9. Simplify $\sqrt{48}$

- A) $10\sqrt{3}$ B) $4\sqrt{12}$
C) $4\sqrt{3}$ D) $2\sqrt{12}$

10. Simplify $5\sqrt{2} + 8\sqrt{5} - 8\sqrt{2}$

$-3\sqrt{2} + 8\sqrt{5}$

11. Simplify $(-\sqrt{27})(5\sqrt{2})$

A) $-5\sqrt{54}$ B) $4\sqrt{54}$

C) $-45\sqrt{6}$ **D) $-15\sqrt{6}$**

12. Simplify $3\sqrt{50}$

A) 15 B) $125\sqrt{2}$

C) $15\sqrt{2}$ ~~D) $8\sqrt{2}$~~

13. Simplify $\sqrt{3}(\sqrt{8} - 3\sqrt{15})$

A) $2\sqrt{6} - 3\sqrt{5}$ B) $4\sqrt{6} - 6\sqrt{5}$

C) $2\sqrt{6} - 9\sqrt{5}$ D) $2\sqrt{12} - 9\sqrt{5}$

14. Simplify $\frac{\sqrt{49}}{\sqrt{20}}$

A) $\frac{\sqrt{35}}{10}$

B) $\frac{7\sqrt{5}}{10}$

C) $\frac{7}{2}$

D) $\frac{7\sqrt{5}}{20}$

15. Simplify $-\sqrt{8x^2}$

A) 4x

B) $2\sqrt{2x}$

C) 2x

D) $2x\sqrt{2}$

16. Simplify $\frac{4\sqrt{3} - \sqrt{3}}{6}$

A) $\frac{2}{3}$

B) $2\sqrt{3}$

C) 2

D) $\frac{\sqrt{3}}{2}$

17. Simplify $-\sqrt{147}$

A) $3\sqrt{7}$ B) $49\sqrt{3}$

C) $7\sqrt{3}$ D) $7\sqrt{2}$

18. Simplify $\frac{2}{\sqrt{7}}$

$\frac{2\sqrt{7}}{7}$

19. Simplify $(-4-\sqrt{12})(-3-\sqrt{3})$

A) 72 B) $12\sqrt{15}$

C) $12\sqrt{6}$ D) $-19\sqrt{3}$

20. Simplify $\frac{5\sqrt{3} + \sqrt{12}}{\sqrt{2}}$

A) $\frac{7\sqrt{6}}{2}$

B) $\frac{6\sqrt{15}}{\sqrt{2}}$

C) $\frac{9\sqrt{6}}{2}$

D) $\frac{7\sqrt{3}}{2}$

21. Simplify $-\sqrt{2x^5y}$

$x^2\sqrt{2xy}$

22. Simplify the given expression. $-\sqrt{12} - 5\sqrt{3} + \sqrt{4}$

A) $2\sqrt{6} - 5\sqrt{3} + \sqrt{4}$

B) $2\sqrt{6} - 5\sqrt{3} + \sqrt{2}$

C) $-3\sqrt{3} + \sqrt{2}$

D) $-3\sqrt{3} + 2$

23. Simplify $\frac{-4\sqrt{27}}{\sqrt{2}}$

$-6\sqrt{6}$

24. Simplify $\frac{\sqrt{2}}{\sqrt{10}}$

$\frac{\sqrt{5}}{5}$

25. Simplify $3\sqrt{7} - \sqrt{49}$

A) $3\sqrt{7} - 7$

B) $4\sqrt{3}$

C) $-4\sqrt{7}$

D) 3

26. Simplify $-5\sqrt{128}$

$-40\sqrt{2}$

27. Simplify $5\sqrt{10} (3\sqrt{5} + 4\sqrt{20})$

~~$225\sqrt{2}$~~
 $275\sqrt{2}$

28. Simplify $\frac{\sqrt{24}}{2\sqrt{9}}$

A) $\frac{\sqrt{8}}{2}$

B) $\frac{\sqrt{6}}{4}$

C) $\frac{\sqrt{6}}{9}$

D) $\frac{\sqrt{6}}{3}$

29. Simplify ~~$\sqrt{75} + 2\sqrt{28} - 9\sqrt{3}$~~

$\sqrt{75} + 2\sqrt{45} - 9\sqrt{3} = -4\sqrt{3} + 6\sqrt{5}$

~~$-4\sqrt{3} + 4\sqrt{7}$~~