NAME _____ DATE _____

Module Test A

Module 17

Fill in the blanks.

1. The radical expression $\sqrt{x^2}$ can be simplified as _____.
2. The radical expression $\sqrt[3]{x^3}$ can be simplified as _____.
3. The conjugate of $5 + \sqrt{2}$ is _____.
4. The conjugate of $\sqrt{7} - \sqrt{3}$ is _____.

Determine whether each statement is true or false.

5. The radical expression $\sqrt{-25}$ is not a real number.

_____

6. The radical expression $-\sqrt{16}$ is not a real number.

_____

7. The radical expression $\sqrt{(-8)^2}$ equals –8.

_____

8. The radical expression $\sqrt{5^2}$ equals –5.

_____

9. The radical expression $\sqrt[3]{2^3}$ equals –2.

_____

10. The product $\sqrt{x} \cdot \sqrt{x}$ is x, for $x > 0$.

_____

11. The fraction $\frac{\sqrt{15}}{5}$ simplifies to $\sqrt{3}$.

_____

12. The fraction $\frac{\sqrt{10}}{\sqrt{2}}$ simplifies to $\sqrt{5}$.

_____

Choose the simplest form of the given value.

13. $\sqrt[3]{8}$

a. 2 **b.** $\sqrt[3]{2}$ **c.** $2\sqrt{2}$ **d.** $2\sqrt[3]{2}$

14. $\sqrt{-25}$

a. 5 **b.** –5 **c.** not a real number **d.** $5\sqrt{-1}$

15. $\sqrt{72}$

a. $3\sqrt{8}$ **b.** $6\sqrt{2}$ **c.** $2\sqrt{18}$ **d.** 36

16. $\sqrt[3]{250}$

a. $5\sqrt[3]{2}$ **b.** $5\sqrt[3]{10}$ **c.** $2\sqrt[3]{5}$ **d.** $5\sqrt{2}$

17. $\sqrt{\frac{2}{3}}$

a. $\frac{\sqrt{2}}{\sqrt{3}}$ **b.** $\sqrt{2}$ **c.** $\frac{2}{\sqrt{6}}$ **d.** $\frac{\sqrt{6}}{3}$

Simplify the following expressions.

18. $3\sqrt{11} + 5\sqrt{11}$

19. $8\sqrt[3]{2} - \sqrt[3]{2}$

20. $\sqrt{9x} - \sqrt{81x}$

21. $\sqrt{50} + \sqrt{18}$

22. $2\sqrt{7} - 3\sqrt{5} + \sqrt{5} + 6\sqrt{7}$

23. $\sqrt{2}(\sqrt{3} + \sqrt{6})$

24. $\frac{\sqrt{3}}{\sqrt{6}}$

25. $\sqrt{\frac{16}{5}}$

26. $\frac{1}{\sqrt{8}}$

Answer the following questions.

27. When is it necessary to rationalize a denominator, and what does the term rationalize mean?

28. Explain what it means for a radical expression to be in simplest form.