UNIT 3 SELF-QUIZ

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1. False: A physical change usually involves a *larger* enthalpy change than does a chemical change.
2. True
3. False: The potential energy of the products is *smaller* than the potential energy of the reactants in an exothermic change.
4. True
5. False: An *endothermic* reaction absorbs heat from the surroundings.
6. True
7. True
8. False: *Three-quarters* of a radioisotope will have changed after two half-lives.
9. False: In an endothermic reaction, *only* the potential *energy* of the chemical system increases.
10. True
11. (b)
12. (c)
13. (e)
14. (a)
15. (e)
16. (c)
17. (b)
18. (d)
19. (b)
20. (e)
21. (b)
22. (a)
23. (c)
24. (c)
25. (e)
26. (c)
27. (b)
28. (d)
29. (c)
30. (d)

UNIT 3 REVIEW

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Understanding Concepts

1. $q_{water} = mc\Delta T$

   $= 1500\text{ g} \times 4.18\text{ J/(g•°C)} \times (75 - 20)\text{°C}$

   $q_{water} = 340\text{ kJ}$

2. $M_{Cl_2} = 70.9\text{ g/mol}$

   $n_{Cl_2} = 2250\text{ g} \times \dfrac{1\text{ mol}}{70.9\text{ g}}$

   $n_{Cl_2} = 31.7\text{ mol}$

   $\Delta H = n_{Cl_2}\Delta H_{vap}$

   $= 31.7\text{ mol} \times 20.7\text{ kJ/mol}$

   $\Delta H = 657\text{ kJ}$

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