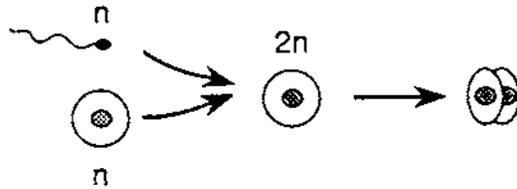
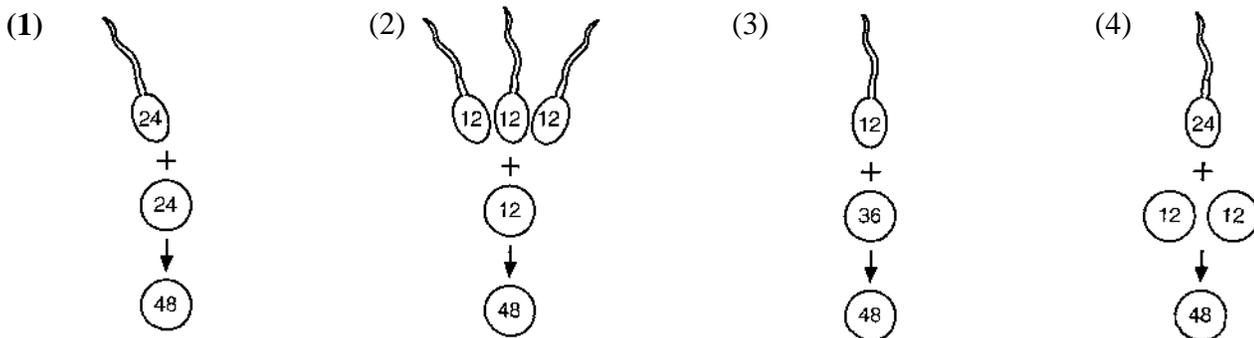


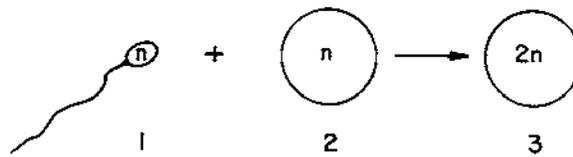
1. As a result of fertilization, the diploid number of chromosomes is normally  
 (1) **restored**                      (2) halved                      (3) doubled                      (4) tripled
2. Which process occurs in sexual reproduction?  
 (1) fission                              (3) vegetative propagation  
 (2) budding                              (4) **fusion of gametes**
3. Which is an immediate result of in vitro fertilization?  
 (1) **a zygote**                      (2) a gamete                      (3) an egg                      (4) an ovary
4. Which is a true statement about the process illustrated below?



- (1) It is the beginning of embryonic development and occurs only in a freshwater environment.  
 (2) It is the beginning of regeneration and occurs only within the female.  
 (3) **It is the beginning of embryonic development and occurs within the female or in water.**  
 (4) It is the beginning of ovule formation and occurs on the stigma of flowers.
5. Which statements accurately describe the order of events in the embryonic development of a vertebrate?  
 (1) An egg is fertilized, forming an embryo. The embryo divides until a zygote has formed.  
 (2) **An egg fertilizes a zygote. The zygote grows into an embryo.**  
 (3) An egg is fertilized, forming a zygote. Cleavage begins and the embryo is formed.  
 (4) A sperm fertilizes an embryo. The embryo divides many times to form a zygote.
6. Complex organisms produce sex cells that unite during fertilization, forming a single cell known as  
 (1) an embryo                      (2) a gamete                      (3) a gonad                      (4) **a zygote**
7. Homologous pairs of chromosomes are restored as a result of  
 (1) gametogenesis                      (2) **fertilization**                      (3) germination                      (4) differentiation
8. The species chromosome number of orangutans is 48. Which diagram represents normal fertilization in orangutans?



9. In the diagram below, in which structure would homologous pairs of chromosomes normally be present?

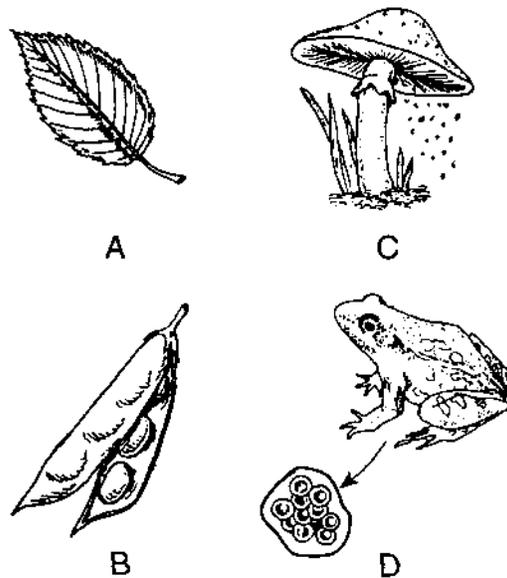


- (1) 1, only                      (2) 2, only                      (3) **3, only**                      (4) either 1 or 2

10. What are the normal chromosome numbers of a sperm, egg, and zygote, respectively?

- (1) monoploid, monoploid, and monoploid                      (3) diploid, diploid, and diploid  
(2) monoploid, diploid, and diploid                      (4) **monoploid, monoploid, and diploid**

11. Which diagrams illustrate structures that are *not* directly involved in the survival of a zygote?



- (1) A and D                      (2) B and D                      (3) B and C                      (4) **A and C**

12. After gametogenesis takes place, which process restores the diploid chromosome number of the species for the next generation?

- (1) oogenesis                      (2) mitosis                      (3) **fertilization**                      (4) meiosis

13. Sperm cells of the Russian dwarf hamster, *Phodopus sungorus*, contain 14 chromosomes. What is the total number of chromosomes that would be contained in a normal, newly formed zygote of this species?

- (1) 7                      (2) 14                      (3) **28**                      (4) 42

14. An example of sexual reproduction is

- (1) regeneration in starfish  
(2) spore formation in mushrooms  
(3) **fusion of the nuclei of gametes**  
(4) development of new plants from undifferentiated tissue