XAMonline: Providing teachers with superior certification study tools

Are you looking for a comprehensive study guide to help you pass the teacher certification exam the first time? Do you want a guide that is aligned with current test guidelines, one that includes the exact information without the fluff? XAMonline’s teacher certification study guides offer an easy-to-understand, in-depth review of the actual content that’s on the test. Unlike other study guides XAMonline provides the actual content, not just a list of a skills and competencies or study secrets.

In addition to a thorough review, our guides include practice tests with up to 125 questions to prepare you for the actual exam. The practice tests include full answer rationales as well as skill reference and rigor for each question, allowing you to quickly flip back and review the relevant content and identify which topics to devote more study time to.

XAMonline guides are designed to prepare you for success, on both your certification test and in the classroom.

Developed by a teacher, for teachers

Founded in 1996, XAMonline began with one teacher-in-training who was frustrated by the lack of materials available for teacher certification exam preparation. From a single state-specific guide, XAMonline has grown to offer over 300 study guides for every state exam, as well as the PRAXIS I and PRAXIS II tests.

Our comprehensive study guides offer more than just the required certification competencies and skills. Their content and structure enables you to go beyond basic skills development and rote memorization to mastery of subject matter, a necessary trait of effective teaching. The content of our PRAXIS and state-specific guides is aligned and weighted to current standards, ensuring you’re studying the right material.

Quality Content from Quality Teaching Professionals

XAMonline’s superior quality standards are maintained by seasoned, professional teachers. We choose from a pool of over 1,500 certified teachers to write, review, and edit our guides. Each certification study guide includes an extensive practice test, which features varied levels of rigor and in-depth answer rationale. Just like the study guide, the practice test questions are aligned with the current state or PRAXIS test parameters, providing you with an experience that parallels the real test.
Testing Tips

1. **Do not read anything into the question.** Do not assume that the test writer is looking for something else than what is asked. Stick to the question as written and do not read extra things into it.

2. **Read the question and all the choices twice before answering the question.** You may miss something by not carefully reading and then re-reading both the question and the answers. If you really do not have a clue as to the right answer, leave it blank on the first time through. Go on to the other questions, as they may provide a clue as to how to answer the skipped questions. If later on, you still cannot answer the skipped ones…**guess.** The only penalty for guessing is that you might get it wrong. Only one thing is certain; if you do not put anything down, you will get it wrong!

3. **Turn the question into a statement.** Look at the wording of the questions. The syntax of the question usually provides a clue. Does it seem more familiar as a statement rather than as a question? Does it sound strange? By turning a question into a statement, you may be able to spot if an answer sounds right, and it may trigger memories of material you have read.

4. **Look for hidden clues.** It is actually very difficult to compose multiple-foil (choice) questions without giving away part of the answer in the options presented. In most multiple-choice questions, you can often readily eliminate one or two of the potential answers. This leaves you with only two real possibilities and automatically your odds go to fifty-fifty for very little work.

5. **Trust your instincts.** For every fact that you have read, you subconsciously retain something of that knowledge. On questions about which you are not really certain, go with your basic instincts. **Your first impression on how to answer a question is usually correct.**

6. **Mark your answers directly on the test booklet.** Do not bother trying to fill in the optical scan sheet on the first pass through the test. **Mark your answers carefully when you transcribe them to the scan sheet.**

7. **Watch the clock!** You have a set amount of time to answer the questions. Do not get bogged down trying to answer a single question at the expense of ten questions you can more readily answer.
1. \[7t - 4 \cdot 2t + 3t \cdot 4 \div 2 = \]
(Average Rigor)
A. 5t
B. 0
C. 31t
D. 18t

2. Which statement is an example of the identity axiom of addition?
(Easy)
A. \(3 + -3 = 0\)
B. \(3x = 3x + 0\)
C. \(3 \cdot \frac{1}{3} = 1\)
D. \(3 + 2x = 2x + 3\)

3. Joe reads 20 words/min., and Jan reads 80 words/min. How many minutes will it take Joe to read the same number of words that it takes Jan 40 minutes to read?
(Rigorous)
A. 10
B. 20
C. 80
D. 160

4. Change \(\sqrt{63}\) into a fraction in simplest form.
(Average Rigor)
A. \(63/100\)
B. \(7/11\)
C. \(6 \ 3/10\)
D. \(2/3\)

5. Given \(W = \) whole numbers \(N = \) natural numbers \(Z = \) integers \(R = \) rational numbers \(I = \) irrational numbers.
Which of the following is not true?
(Easy)
A. \(R \subseteq I\)
B. \(W \subseteq Z\)
C. \(Z \subseteq R\)
D. \(N \subseteq W\)

6. \((3.8 \times 10^{17}) \times (.5 \times 10^{-12})\)
(Average Rigor)
A. \(19 \times 10^5\)
B. \(1.9 \times 10^5\)
C. \(1.9 \times 10^6\)
D. \(1.9 \times 10^7\)
7. Find the GCF of \(2^2 \cdot 3^2 \cdot 5\) and \(2^2 \cdot 3 \cdot 7\).
   (Average Rigor)
   A. \(2^5 \cdot 3^3 \cdot 5 \cdot 7\)
   B. \(2 \cdot 3 \cdot 5 \cdot 7\)
   C. \(2^2 \cdot 3\)
   D. \(2^3 \cdot 3^2 \cdot 5 \cdot 7\)

8. If three cups of concentrate are needed to make 2 gallons of fruit punch, how many cups are needed to make 5 gallons?
   (Easy)
   A. 6 cups
   B. 7 cups
   C. 7.5 cups
   D. 10 cups

9. Simplify: \(\frac{10}{1 + 3i}\)
   (Rigorous)
   A. \(-1.25(1 - 3i)\)
   B. \(1.25(1 + 3i)\)
   C. \(1 + 3i\)
   D. \(1 - 3i\)

10. Simplify: \(\sqrt{27} + \sqrt{75}\)
    (Rigorous)
    A. \(8\sqrt{3}\)
    B. \(34\)
    C. \(34\sqrt{3}\)
    D. \(15\sqrt{3}\)

11. Identify the proper sequencing of subskills when teaching graphing inequalities in two dimensions
    (Easy)
    A. Shading regions, graphing lines, graphing points, determining whether a line is solid or broken
    B. Graphing points, graphing lines, determining whether a line is solid or broken, shading regions
    C. Graphing points, shading regions, determining whether a line is solid or broken, graphing lines
    D. Graphing lines, determining whether a line is solid or broken, graphing points, shading regions

12. What would be the seventh term of the expanded binomial \((2a + b)^8\)?
    (Rigorous)
    A. \(2ab^7\)
    B. \(41a^4b^4\)
    C. \(112a^2b^6\)
    D. \(16ab^7\)
13. Determine the volume of a sphere to the nearest cm if the surface area is 113 cm². (Rigorous)

A. 113 cm³  
B. 339 cm³  
C. 37.7 cm³  
D. 226 cm³

14. Ginny and Nick head back to their respective colleges after being home for the weekend. They leave their house at the same time and drive for 4 hours. Ginny drives due south at the average rate of 60 miles per hour and Nick drives due east at the average rate of 60 miles per hour. What is the straight-line distance between them, in miles, at the end of the 4 hours? (Rigorous)

A. 120√2  
B. 240  
C. 240√2  
D. 288

15. Which is a postulate? (Easy)

A. The sum of the angles in any triangle is 180°.
B. A line intersects a plane in one point.
C. Two intersecting lines form congruent vertical angles.
D. Any segment is congruent to itself.

16. Given \( l_1 \parallel l_2 \) which of the following is true? (Average Rigor)

A. \( \angle 1 \) and \( \angle 8 \) are congruent and alternate interior angles
B. \( \angle 2 \) and \( \angle 3 \) are congruent and corresponding angles
C. \( \angle 3 \) and \( \angle 4 \) are adjacent and supplementary angles
D. \( \angle 3 \) and \( \angle 5 \) are adjacent and supplementary angles
17. When you begin by assuming the conclusion of a theorem is false, then show that through a sequence of logically correct steps you contradict an accepted fact, this is known as (Easy)

A. Inductive reasoning
B. Direct proof
C. Indirect proof
D. Exhaustive proof

18. Given that QO \perp NP and QO=NP, quadrilateral NOPQ can most accurately be described as a (Easy)

A. Parallelogram
B. Rectangle
C. Square
D. Rhombus

19. What is the slope of any line parallel to the line $2x + 4y = 4$? (Rigorous)

A. -2
B. -1
C. $-\frac{1}{2}$
D. 2

20. Which set illustrates a function? (Easy)

A. { (0,1) (0,2) (0,3) (0,4) }
B. { (3, 9) (–3, 9) (4, 16) (–4, 16) }
C. { (1, 2) (2, 3) (3, 4) (1, 4) }
D. { (2, 4) (3, 6) (4, 8) (4, 16) }

21. Graph the solution: $|x| + 7 < 13$ (Rigorous)

A. 
B. 
C. 
D. 

22. A boat travels 30 miles upstream in three hours. It makes the return trip in one and a half hours. What is the speed of the boat in still water? (Rigorous)

A. 10 mph
B. 15 mph
C. 20 mph
D. 30 mph
23. State the domain of the function

\[ f(x) = \frac{3x - 6}{x^2 - 25} \]

(Rigorous)

A. \( x \neq 2 \)
B. \( x \neq 5, -5 \)
C. \( x \neq 2, -2 \)
D. \( x \neq 5 \)

24. If a horse will probably win three races out of ten, what are the odds that he will win?

(Rigorous)

A. 3:10
B. 7:10
C. 3:7
D. 7:3

25. Compute the median for the following data set:

\{12, 19, 13, 16, 17, 14\}

(Average Rigor)

A. 14.5
B. 15.17
C. 15
D. 16

26. Corporate salaries are listed for several employees. Which would be the best measure of central tendency?

$24,000 $24,000 $26,000 $28,000 $30,000 $120,000

(Average Rigor)

A. Mean
B. Median
C. Mode
D. No difference

27. Determine the number of subsets of set \( K \).

\( K = \{4, 5, 6, 7\} \)

(Average Rigor)

A. 15
B. 16
C. 17
D. 18
28. A student scored in the 87th percentile on a standardized test. Which would be the best interpretation of his score? 
   *(Easy)*
   
   A. Only 13% of the students who took the test scored higher.
   
   B. This student should be getting mostly Bs on his report card.
   
   C. This student performed below average on the test.
   
   D. This is the equivalent of missing 13 questions on a 100 question exam.

29. A sack of candy has 3 peppermints, 2 butterscotch drops and 3 cinnamon drops. One candy is drawn and replaced, then another candy is drawn; what is the probability that both will be butterscotch? 
   *(Average Rigor)*
   
   A. 1/2
   
   B. 1/28
   
   C. 1/4
   
   D. 1/16

30. A man sold two cars for $6,500 each. On the first car he made a profit of 30% and on the second car he lost 30%.

   (a) Did he make a profit overall or did he lose money?
   
   (b) What was the percentage of his net gain or loss?
Answer Key
1. A
2. B
3. D
4. B
5. A
6. B
7. C
8. C
9. D
10. A
11. B
12. C
13. A
14. C
15. D
16. C
17. C
18. C
19. C
20. B
21. A
22. B
23. B
24. C
25. C
26. B
27. B
28. A
29. D
30. (a) Since both cars were sold for the same price, the first car was cheaper than the second. Since the percentage is the same in both cases, the profit on the first car was smaller than the loss on the second car. Hence, even without calculating the actual amounts, one can conclude that the man lost money overall.

(b) The cost \( x \) of the first car can be calculated by setting up the following proportion equation:

\[
\frac{130}{100} = \frac{3500}{x}
\]

Cross-multiplying and solving for \( x \),

\[
130x = 350000
\]

\[
\Rightarrow x = \frac{350000}{130} = 2692.31
\]
The cost $y$ of the second car can be calculated by setting up the following proportion equation:

\[
\frac{70}{100} = \frac{3500}{y}
\]

Cross-multiplying and solving for $y$,

\[
70y = 350000
\]

\[
\Rightarrow y = \frac{350000}{70} = 5000
\]

Net cost of the two cars = $7692.31
Net sale price for the cars = $7000

Hence, net percentage loss = \[
\frac{7692.31 - 7000}{7692.31} \times 100 = \frac{692.31}{7692.31} \times 100 = 9\%
\]