ACCUPLACER Math Placement Practice

Use this key to check answers and read the explanations.

1. What is $48 \div (7 - 3) + 2^3$?
   - A. 20
   - B. 26
   - C. 14
   - D. 32

   Correct answer: A. 20
   Evaluate the parenthesis and exponent first. The expression is 48 ÷ 4 + 8, which is 20.

2. Which fraction equals $7/12 - 1/8$?
   - A. 1/4
   - B. 5/12
   - C. 11/24
   - D. 3/8

   Correct answer: C. 11/24
   Use the common denominator 24. The difference is 14/24 − 3/24 = 11/24.

3. What is the product of 2.75 and 4.6?
   - A. 126.5
   - B. 12.65
   - C. 10.65
   - D. 12.15

   Correct answer: B. 12.65
   Multiplying 275 by 46 gives 12,650. The factors have three decimal places in all, so the product is 12.650.

4. Which of these four numbers is greatest?
   - A. 0.605
   - B. 0.62
   - C. 61%
   - D. 5/8

   Correct answer: D. 5/8
   Convert all values to decimals. They are 0.625, 0.620, 0.610, and 0.605, so 5/8 is largest.

5. After a 16% price reduction, a desk costs $84. What was its price before the reduction?

A. $97.44
B. $100
C. $98.00
D. $105.00

Correct answer: B. $100
The sale price is 84% of the original. Divide $84 by 0.84 to find the original price of $100.

6. An order contains only pens and pencils in a ratio of 7 pens to 4 pencils. There are 66 items. How many are pencils?

A. 24
B. 28
C. 42
D. 38

Correct answer: A. 24
There are 11 parts in one ratio group. Each part represents 66 ÷ 11 = 6 items, so the pencil count is 4 × 6 = 24.

7. What is the solution to $3(t + 2) - 4 = 2(t + 5)$?

A. 12
B. 4
C. −8
D. 8

Correct answer: D. 8
Expanding yields 3t + 2 = 2t + 10. Subtract 2t and 2 to get t = 8.

8. Two signs are similar rectangles. A short side of the smaller sign is 8 inches, and the corresponding side of the larger sign is 12 inches. If the smaller perimeter is 36 inches, what is the larger perimeter?

A. 48 inches
B. 40 inches
C. 54 inches
D. 81 inches

Correct answer: C. 54 inches
Corresponding lengths scale by 12/8 = 1.5. The sum of side lengths scales by that same factor, giving 54 inches.

9. Of 40 people, 17 take a morning class, 15 take an evening class, and 6 take both. How many take neither class?

A. 14
B. 8
C. 12
D. 20

Correct answer: A. 14
Subtract the overlap once when counting people in either class. There are 17 + 15 − 6 = 26 in at least one, leaving 14.

10. A list contains the values 3, 6, 8, 9, 11, 13. Its largest value is replaced by 43. What happens to the mean and median?

A. The mean stays the same and the median rises by 5
B. The mean rises by 30 and the median rises by 5
C. The mean rises by 5 and the median rises by 5
D. The mean rises by 5 and the median stays the same

Correct answer: D. The mean rises by 5 and the median stays the same
The sum rises by 30 across six values, increasing the mean by 5. The two middle values, 8 and 9, do not change.

11. Which is a complete factorization of $3x^2 - x - 10$?

A. $(3x - 2)(x + 5)$
B. $(3x - 5)(x + 2)$
C. $(3x + 5)(x - 2)$
D. $(3x + 2)(x - 5)$

Correct answer: C. $(3x + 5)(x - 2)$
Expand the first product. The middle terms are $-6x$ and $5x$, so their sum is $-x$. The constant term is -10.

12. Which real value solves $3/(x - 1) = 5/(x + 3)$?

A. 2
B. 7
C. −7
D. −2

Correct answer: B. 7
The original equation excludes 1 and −3. Cross-multiplication gives $3x + 9 = 5x - 5$, so $x = 7$ is allowed and satisfies the equation.

13. If $P(x) = x^3 + 3x^2 - 5x + 2$, what is the remainder when $P(x)$ is divided by $x + 2$?

A. 24
B. 12
C. 0
D. 16

Correct answer: D. 16
The remainder is $P(-2)$ because $x + 2$ is zero at -2. Substitution gives $-8 + 12 + 10 + 2 = 16$.

14. Which real value solves $\log_2(x - 3) + \log_2(x + 3) = 4$?

A. 5
B. -5
C. 4
D. 7

Correct answer: A. 5
Both log arguments must be positive, so $x > 3$. Combine the logs to get $x^2 - 9 = 2^4 = 16$. Only $x = 5$ meets the domain condition.

15. A function is defined by $f(x) = \sqrt{(2x - 6)} + 4$ for $x \geq 3$. Which formula and domain describe its inverse?

A. $f^{-1}(x) = (x + 4)^2/2 - 3$ for $x \geq 4$
B. $f^{-1}(x) = (x - 4)^2/2 + 3$ for all real x
C. $f^{-1}(x) = (x - 4)^2/2 + 3$ for $x \geq 4$
D. $f^{-1}(x) = \sqrt{(2x - 6)} - 4$ for $x \geq 3$

Correct answer: C. $f^{-1}(x) = (x - 4)^2/2 + 3$ for $x \geq 4$
Solve $y - 4 = \sqrt{(2x - 6)}$ for x to get $x = (y - 4)^2/2 + 3$. The original range starts at 4, so the inverse domain is $x \geq 4$.