ACT Math Practice

Choose one answer per question. Circle A, B, C, or D.

1. What is the value of $9 - 2(3 - 7)$?
   A. 17
   B. 1
   C. 13
   D. −17

2. Which value of x satisfies $5(x - 2) = 2x + 11$?
   A. 21
   B. 3
   C. 7
   D. 1/3

3. A regular polygon has an exterior angle of 24° at each vertex. How many sides does it have?
   A. 12
   B. 15
   C. 18
   D. 24

4. If $f(x) = 2x^2 - 3x + 1$, what is $f(-2)$?
   A. −13
   B. 3
   C. −1
   D. 15

5. A bin contains 5 blue, 3 yellow, and 4 gray clips. One clip is chosen uniformly at random. What is the probability that it is blue or gray?
   A. 5/12
   B. 3/4
   C. 1/4
   D. 2/3

6. A line through (−2, 5) and (4, −4) has what slope?
   A. −3/2
   B. −2/3
   C. 3/2
   D. −1/6

7. A greenhouse orders 17 trays of seedlings. Each herb tray holds 6 plants and each flower tray holds 9. The 17 trays contain 129 plants. How many herb trays are in the order?

A. 5
B. 9
C. 11
D. 8

8. For every nonzero a and b, which expression equals $(a^3b^{-2})^2 \div (ab^{-1})$?

A. a^7/b^3
B. a^5/b^5
C. a^5/b^3
D. a^5b^3

9. Angle θ is acute, and $\sin \theta = 8/17$. What is $\tan \theta$?

A. 8/15
B. 15/17
C. 15/8
D. 8/17

10. Five numbers have mean 14. Four are 9, 11, 17, and 19. What is the median of all five numbers?

A. 16
B. 11
C. 17
D. 14

11. Let $f(x) = 3x - 2$ and $g(x) = x^2 + 4$. Which expression is $g(f(x))$?

A. $9x^2 + 8$
B. $3x^2 + 10$
C. $9x^2 - 12x + 8$
D. $9x^2 - 6x + 8$

12. Two printers charge fixed fees plus a per-copy fee. Plan A costs $18 plus $0.12 per copy. Plan B costs $30 plus $0.07 per copy. What is the smallest whole number of copies for which Plan B costs less than Plan A?

A. 240
B. 241
C. 150
D. 601

13. Two badges are drawn at random without replacement from a box with 5 red and 3 silver badges. What is the probability of drawing one of each color?

A. 25/64
B. 15/56
C. 1/2
D. 15/28

14. A circle is centered at $(-3, 4)$ and passes through $(1, 7)$. Which point also lies on the circle?

A. $(-6, 0)$
B. $(-7, 2)$
C. $(2, 5)$
D. $(-3, 8)$

15. For a real number k, the equation $x^2 - kx + 16 = 0$ has two distinct positive real solutions. Which condition on k is necessary and sufficient?

A. $k < -8$
B. $k \geq 8$
C. $k > 8$
D. $-8 < k < 8$