

## SOL Mini-Challenge

## Expressions and Operations

### A.2

Read and solve.

1. Which is equivalent to  $(2x^2)^3$  ?

- A.  $8x^6$
- B.  $6x^6$
- C.  $8x^5$
- D.  $6x^5$

2.  $\frac{12x^5y - 3x^{10}y^3 + 21x^{15}y^4}{3x^5y}$  is equivalent to---

- A.  $4 - x^5y^2 + 7x^{10}y^3$
- B.  $4xy - x^5y^2 + 7x^{10}y^3$
- C.  $4 - x^5y^3 + 7x^{10}y^4$
- D.  $4xy - x^2y^3 + 7x^3y^4$

3. The diameter of a barium atom is 0.0000004346 millimeters. In scientific notation it is

- A.  $43.46 \times 10^{-8}$  mm
- B.  $4.346 \times 10^7$  mm
- C.  $4.346 \times 10^{-7}$  mm
- D.  $4346.0 \times 10^{-7}$  mm

4.  $5x(3x^2 + 4x - 6)$  is equivalent to---

- A.  $8x^3 + 9x^2 - 11x$
- B.  $15x^2 + 20x - 30$
- C.  $15x^3 + 4x - 6$
- D.  $15x^3 + 20x^2 - 30x$

5. Evaluate  $(4.67 \times 10^7) \cdot (3.24 \times 10^3)$ .

- A.  $1.51308 \times 10^{11}$
- B.  $1.51308 \times 10^{21}$
- C.  $7.91 \times 10^{10}$
- D.  $15.1308 \times 10^{10}$

**SOL Mini-Challenge— continued**

6. 648,392 in scientific notation is—

- A.  $648.392 \times 10^3$
- B.  $6.48392 \times 10^5$
- C.  $6.48392 \times 10^{-5}$
- D.  $.648392 \times 10^{-6}$

7. Which is equivalent to  $-3x^2y(6x^3y^2 + 10x^2y - 2x + 8)$ ?

- A.  $-18x^5y^3 + 10x^2y - 2x + 8$
- B.  $-18x^5y^3 - 30x^4y^2 + 6x^3y - 24x^2y$
- C.  $-18x^6y^2 - 30x^4y^2 + 6x^2y - 24x^2y$
- D.  $-18x^9y^3 - 30x^2y + 6x^2 - 24$

8. Which is equivalent to  $(6x^2)(3x^4)(2x^5)^3$  ?

- A.  $17x^{21}$
- B.  $108x^{21}$
- C.  $144x^{21}$
- D.  $144x^{40}$

9. Which is equivalent to  $\frac{6x^4 + 9x^3 - 15x^2}{3x}$  ?

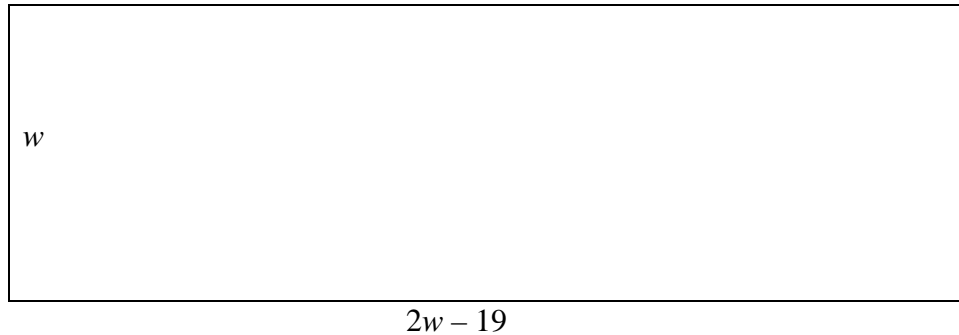
- A.  $2x^3 + 3x^2 - 5x$
- B.  $3x^3 + 6x^2 - 12x$
- C.  $6x^3 + 9x^2 - 15x$
- D.  $18x^5 + 27x^4 - 45x^3$

10. Which is equivalent to  $(8x^4y^2)^5$  ?

- A.  $390,625 x^{20}y^{10}$
- B.  $32,768 x^{20}y^{10}$
- C.  $40 x^{20}y^{10}$
- D.  $40 x^9y^7$

Read and solve.

11. The length of a rectangular classroom floor is 19 feet less than twice the width.



Which expression represents the area of the classroom floor?

- A.  $3w - 19$   
B.  $6w - 38$   
C.  $2w^2 - 19w$   
D.  $2w^2 - 19$
12. Which expression is equivalent to  $(2a + 4b)(3a - b)$  ?
- F.  $5a - 3b$   
G.  $6a^2 - 4b^2$   
H.  $6a^2 - 10ab + 5b^2$   
J.  $6a^2 + 10ab - 4b^2$
13. Which expression is equivalent to  $(3m + 6n - 5) + (2m - 3n + 6)$  ?
- A.  $m + 3n + 1$   
B.  $5m + 3n + 1$   
C.  $5m + 9n + 11$   
D.  $6m - 18n - 30$
14. Which expression is equivalent to  $(x - 4)(x + 3)$  ?
- F.  $-2x - 1$   
G.  $x^2 - 12$   
H.  $x^2 - x - 12$   
J.  $x^2 + 7x - 12$

**SOL Mini-Challenge—continued**

15. Which expression is equivalent to  $(7x + 8y - 8) - (-x - 3y - 6z)$  ?

- A.  $8x^2 + 5y^2 - 2z$
- B.  $-7x^2 - 24y^2 - 6z - 8$
- C.  $6x + 5y + 6z - 8$
- D.  $8x + 11y + 6z - 8$

16. Which is equivalent to  $(6x - 4y)^2$  ?

- F.  $36x^2 - 16y^2$
- G.  $12x^2 - 24xy - 8y^2$
- H.  $36x^2 - 24xy + 16y^2$
- J.  $36x^2 - 48xy + 16y^2$

17. Which is equivalent to  $(x - 4)(x + 4)$  ?

- A.  $2x - 8$
- B.  $x^2 - 16$
- C.  $x^2 - 8x - 16$
- D.  $x^2 - 8x + 16$

18. Which is equivalent to  $(15x^2 + 3x - 6) - (15x^2 + 3x + 6)$  ?

- F.  $-12$
- G.  $12$
- H.  $0$
- J.  $30x^2 + 6x$

19. Which is equivalent to  $(3x^2 - 4)(2x^3 + 6x)$  ?

- A.  $6x^5 - 24x$
- B.  $6x^5 + 10x^3 - 24x$
- C.  $6x^6 + 3x^3 - 24x$
- D.  $5x^5 + 7x^3 + 2$

20. Which is equivalent to  $(15x^2 + 8x - 9) + (3x^2 - 2x + 8)$  ?

- F.  $12x^2 - 10x - 17$
- G.  $18x^2 + 6x - 1$
- H.  $18x^2 + 10x + 17$
- J.  $18x^4 + 6x^2 - 1$