

UB SAT 2009
Worksheet #18
Plugging-In the Answer and Plugging In
Mixed Problems

1. If $\frac{4}{2x} = 1$, then $x =$

- (A) 4 (B) 2 (C) 1 (D) $\frac{1}{2}$ (E) $\frac{3}{4}$

2. For all possible values of a , if $a \cdot \frac{b}{2} = \frac{a}{2}$, what MUST b equal?

- (A) $\frac{a}{2}$ (B) 0 (C) a (D) 1 (E) $-a$

3. If $y^2 = \sqrt{x}$ and $y = 3$, what is the value of x ?

- (A) 81 (B) 27 (C) 9 (D) 3 (E) -3

4. If $x < 0 < y$, which of the following must be true?

- (A) $x + y > 0$ (B) $x^2 + y^2 < 0$ (C) $xy > 0$ (D) $\frac{x}{y} < 0$ (E) $x - y > 0$

5. If r and h are positive integers and $r + 12 = h^2$, which of the following could be the value of r ?

- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

6. Nancy and James went to the library and James borrowed 4 less than three times the number of books that Nancy did. If Nancy borrowed n books, how many books did James borrow?

- (A) $4(n-3)$ (B) $4n-3$ (C) $3n+4$ (D) $3(n+4)$ (E) $3n-4$

7. What is the greatest power of 3 that is a positive integer divisor of 702?

- (A) 3 (B) 4 (C) 6 (D) 7 (E) 13

8. If $q = \frac{1}{s}$ and $qs \neq 0$, what is the result of $\frac{1+q}{1+s}$?

- (A) 0 (B) $-q$ (C) 1 (D) s (E) q

9. While running the marathon, Emily averages 10 minutes a mile for the first b hours where $b < 4.3$. In terms of b , how much farther does Emily have to run in order to complete the 26 mile race?

- (A) $26 - 6b$ (B) $26 - 600b$ (C) $6b - 26$ (D) $26 - \frac{6}{b}$ (E) $26 - \frac{b}{6}$

10. If $2^{4x-4} = 16^5$, what is the value of $2x$?

- (A) 2.25 (B) 4.50 (C) 5.50 (D) 6.00 (E) 12.00

11. Kathleen's phone company charges 35 cents per minute of calling time during peak hours and 15 cents per calling time during non-peak hours. If Kathleen's phone company charged her \$7.90 for a 30-minute phone call, how many minutes of that call were during peak hours?

- (A) 7 (B) 12 (C) 15 (D) 17 (E) 21

12. In a lottery drawing, tickets will be drawn randomly out of a hat. If $\frac{1}{10}$ of the tickets in the hat are green, $\frac{1}{2}$ of them are white, $\frac{1}{4}$ of them are blue, and the remaining 30 tickets are pink, what is the number of blue tickets in the hat?

- (A) 25 (B) 50 (C) 75 (D) 120 (E) 200

13. Joe fills his 100 mL mug with b mL of coffee and then adds a mL of cream so that the mug is totally full. In terms of a , what percent of the mug is filled with coffee?

- (A) $100 - a\%$ (B) $100 + a\%$ (C) $\frac{100 - a}{100}\%$ (D) $\frac{a}{100}\%$ (E) $a\%$

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Answers

1. B

2. D

3. A

4. D

5. C

6. E

7. A

8. E

9. A

10. E

11. D

12. B

13. A