

TSI Sample Problems by Aparna Ganguli

1. Solve: $x + 3(2x - 5) = 6$

A. $\frac{11}{7}$

B. $\frac{11}{4}$

C. 3

D. 14

2. Multiply: $(2x - 3y)^2 =$

A. $4x^2 + 9y^2$

B. $4x^2 - 12xy + 9y^2$

C. $2x^2 + 6y^2$

D. $4x^2 - 6xy + 9y^2$

3. Which of the following is a factor of $6a^2 - 15a - 36$?

A. $2a - 3$

B. $2a + 3$

C. $a + 4$

D. $a - 3$

4. Which of the following is a factor of $2x^2 + 5x - 12$?

A. $2x - 3$

B. $2x + 3$

C. $x - 4$

D. $x - 3$

5. Rosa as an employee of a departmental store receives an additional 5% off of the lowest price on an item. If she purchases an item during a 20% off sale, which expression will be her final cost of the item?

- A. $0.76c$
- B. $0.85c$
- C. $\$76$
- D. $\$75$

6. Simplify: $\frac{a^6}{a^2}$

- A. a^3
- B. a^4
- C. 3
- D. a^8

7. Solve $5x^2 + 4x - 4 = 0$ Use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.

- A. $x = \frac{4}{9}$
- B. $x = \frac{-4 \pm \sqrt{96}}{10}$
- C. $x = \frac{-4 \pm \sqrt{-66}}{210}$
- D. $x = \frac{-2 \pm 2\sqrt{6}}{5}$

8. The base of a right triangle is 5 ft. longer than the height. Find the base if the area is 50 ft^2

- A. 10 ft
- B. $\frac{-5 \pm \sqrt{-375}}{2}$ ft
- C. 7.8ft
- D. 12.8ft

9. If d is the price of an item and it is marked 12% off during the sale. What is the sale price?

- A. $1 - 0.12d$
- B. $0.12d$
- C. $0.88d$
- D. $\$88$

10. If L is the original price of a designer lamp and during the sale it is marked 15% off, then the sale price is

- A. $0.85L$
- B. $0.15L$
- C. $\$85$
- D. 0.85

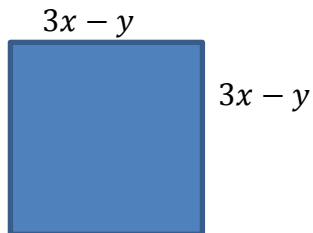
11. Simplify: $\frac{yx+y}{y}$

- A. yx
- B. $x + y$
- C. $yx + 1$
- D. $x + 1$

12. If $4b - 1 = b$, then $24b =$

- A. 8
- B. $\frac{1}{3}$
- C. $24\frac{1}{3}$
- D. $\frac{1}{5}$

13. Find the area



- A. $6x^2 + y^2$
- B. $9x^2 - 6xy + y^2$
- C. $3x^2 + y^2$
- D. $9x^2 + 6xy + y^2$

14. The variable y varies directly as x . Given that $y = 10.5$ when $x = 9.1$, find x when $y = 150$.

- A. 130
- B. 135.5
- C. 171
- D. 173.

15. $f(t) = \frac{t-1}{t^2-4}$, find $f(1)$

- A. $\frac{1}{4}$
- B. 0
- C. $\frac{1}{2}$
- D. $\frac{1}{3}$

16. An object is thrown upward from the ground. The height $h(t)$ in t seconds is given by the equation $h(t) = -16t^2 + 32t$. Find the time when the object will hit the ground.

- A. 2 sec
- B. 4 sec
- C. 8 sec
- D. 16 sec

17. A bag contains 15 red marbles, 10 blue marbles and 5 green marbles. What is the probability of choosing a marble that is not green when one marble is drawn from the bag?

- A. $\frac{1}{6}$
- B. $\frac{1}{5}$
- C. $\frac{1}{3}$
- D. $\frac{5}{6}$

18. Solve the inequality: $-6a > -24$

- A. $a < -18$
- B. $a < -4$
- C. $a < 4$
- D. $a > -18$

19. If $-x^2 + 6x - 7 = y$, find the maximum value of y .

- A. 2
- B. 6
- C. 7
- D. 13

20. The numbers 6, 4, 6, 3, 7 are in the list. Which of the statements below is not true?

- A. Mean and Median are equal
- B. Median and Mode are the same
- C. Mode is greater than Mean
- D. Largest number in the list is 7

21. There were 2000 delegates in a convention. 20% of the delegates were from blue states and 25% of the delegates were from red states. The rest of the delegates were from undecided states. If a speaker is chosen from the delegates, what is the probability of having the speaker from a red state?

- A. $\frac{1}{4}$
- B. $\frac{1}{5}$
- C. $\frac{1}{3}$
- D. $\frac{1}{8}$

Answers:

1. C
2. B
3. B
4. A
5. A
6. B
7. D
8. D
9. C
10. A
11. D
12. A
13. B
14. A
15. B
16. A
17. D
18. C
19. A
20. A
21. A