

# Texas Success Initiative (TSI) Sample Questions

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# TSI Assessment-Sample Questions

## Mathematics

Page 1 and 2-Sample Questions

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**Multiple Choice-8 Questions: Choose the one alternative that best completes the statement or answers the question.**

**Multiply.**

1)  $(10z + 1)^2$  1) \_\_\_\_\_  
A)  $10z^2 + 20z + 1$  B)  $10z^2 + 1$  C)  $100z^2 + 20z + 1$  D)  $100z^2 + 1$

**Evaluate the expression for the given replacement values.**

2)  $\frac{x^2 + z}{y^2 - 3z}$   $x = 2, y = 3, z = 11$  2) \_\_\_\_\_  
A)  $-\frac{15}{2}$  B)  $-\frac{5}{8}$  C)  $\frac{5}{14}$  D)  $\frac{22}{21}$

**Solve the equation.**

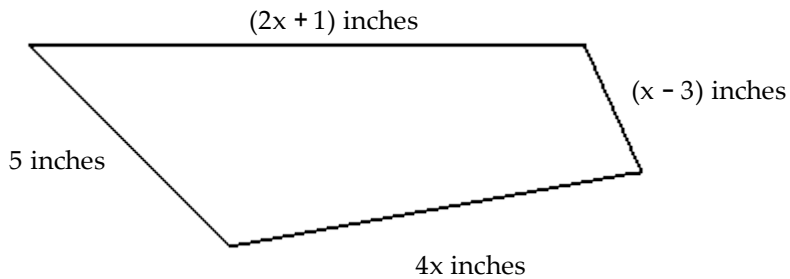
3)  $2(y + 6) = 3(y - 8)$  3) \_\_\_\_\_  
A) 12 B) -12 C) -36 D) 36

**Use the product rule to multiply. Assume all variables represent positive real numbers.**

4)  $\sqrt{5} \cdot \sqrt{6}$  4) \_\_\_\_\_  
A)  $\sqrt{5 + 6}$  B)  $\sqrt{30}$  C) 30 D)  $\sqrt{11}$

Write the algebraic expression described.

- 5) Given the following quadrilateral, express the perimeter, or total distance around the figure, as an algebraic expression containing the variable  $x$ . 5) \_\_\_\_\_



- A)  $(6x + 3)$  in.      B)  $(7x + 9)$  in.      C)  $(6x + 9)$  in.      D)  $(7x + 3)$  in.

Use the properties of exponents to simplify the expression. Write with positive exponents.

6)  $\frac{y^{3/4}}{y^{1/4}}$

A)  $\frac{1}{y}$

B)  $y^{1/2}$

C)  $y$

D)  $y^{3/4}$

6) \_\_\_\_\_

Solve the equation.

7)  $\frac{5-a}{a} + \frac{3}{4} = \frac{7}{a}$

A)  $-8$

B)  $4$

C)  $-4$

D)  $8$

7) \_\_\_\_\_

Find the product and simplify.

8)  $\frac{9x^4 - 72x}{3x^2 - 12} \cdot \frac{x^2 + x - 2}{4x^3 + 8x^2 + 16x}$

A)  $\frac{3x(x-1)}{4}$

B)  $\frac{3(x-1)}{4}$

C)  $\frac{3x(x-1)(x-2)^2}{4(x+2)^2}$

D)  $\frac{3x(x+1)}{4}$

8) \_\_\_\_\_

## Solutions

1:

$$(10z + 1)^2$$

$$(10z + 1)(10z + 1) \text{ Write out Twice}$$

$$100z^2 + 10z + 10z + 1 \text{ Distribute (Foil)}$$

$$100z^2 + 20z + 1 \text{ Combine like terms.}$$

2:

$$\frac{x^2 + z}{y^2 - 3z}, x = 2, y = 3, z = 11$$

$$\frac{(2)^2 + (11)}{(3)^2 - 3(11)}, \text{ Plug in the values of } x, y, \text{ and } z.$$

$$\frac{4 + 11}{9 - 3(11)}, \text{ Order of Operations, exponents.}$$

$$\frac{4 + 11}{9 + 33}, \text{ Two negatives make a positive. Multiply } 3 * 11.$$

$$\frac{15}{42}, \text{ Add numerator and add denominator.}$$

$$\frac{5}{14}, \text{ Reduce.}$$

3:

$$2(y + 6) = 3(y - 8)$$

$$2y + 12 = 3y - 24 \text{ Distribute.}$$

$$2y - 2y + 12 = 3y - 2y - 24 \text{ Subtract } 2y \text{ both sides.}$$

$$12 = y - 24 \text{ Combine like terms on each side.}$$

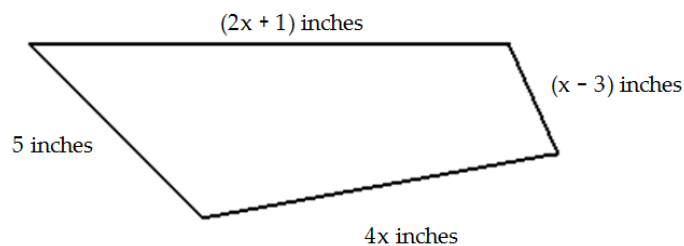
$$12 + 24 = y - 24 + 24 \text{ Add } 24 \text{ to both sides.}$$

$$36 = y \text{ Combine like terms on each side.}$$

4:

$$\frac{\sqrt{5} * \sqrt{6}}{\sqrt{(5 * 6) \text{ Multiply the radicands.}}}$$
$$\sqrt{30}$$

5:



Perimeter is the total distance around. To find the perimeter of this figure, all of the sides must be added together.

$$(2x + 1) + (x - 3) + (4x) + (5) \text{ inches}$$
$$(2x + x + 4x + 1 - 3 + 5) \text{ inches} - \text{Commutative Property}$$
$$7x + 3 \text{ inches} - \text{Combine like terms.}$$

6:

$$\frac{y^{\frac{3}{4}}}{y^{\frac{1}{4}}} \text{ When dividing terms with the same base, we subtract the exponents.}$$

$$y^{\frac{3-1}{4}}, \text{ Subtract the numerators since the denominators are the same.}$$

$$y^{\frac{2}{4}}, \text{ Reduce the fraction.}$$

$$y^{\frac{1}{2}}$$

7:

$$\frac{5-a}{a} + \frac{3}{4} = \frac{7}{a}, \text{ To solve a rational equation, find the Least Common Denominator, } 4a.$$

$$4a * \frac{5-a}{a} + 4a * \frac{3}{4} = 4a * \frac{7}{a}, \text{ Multiply by the LCD.}$$

$$4(5-a) + 3a = 4 * 7, \quad \text{Reduce the fractions.}$$

$$20 - 4a + 3a = 28, \quad \text{Distribute and multiply.}$$

$$20 - a = 28, \quad \text{Combine like terms.}$$

$$20 - 20 - a = 28 - 20, \quad \text{Subtract 20 from both sides.}$$

$$-a = 8, \quad \text{Combine like terms.}$$

$$-1 * -a = -1 * 8, \quad \text{To make a positive, multiply both sides by } -1.$$

$$a = -8$$

$$\frac{5 - (-8)}{(-8)} + \frac{3}{4} = \frac{7}{(-8)}, \quad \text{Substitute in } -8 \text{ to verify solution.}$$

$$\frac{13}{(-8)} + \frac{3}{4} = \frac{7}{(-8)}, \quad \text{Add numerator.}$$

$$\frac{13}{(-8)} + \frac{-6}{-8} = \frac{7}{(-8)}, \text{ Common Denominator is } -8. \text{ Multiply } \frac{3}{4} \text{ by } \frac{-2}{-2}.$$

$$\frac{7}{-8} = \frac{7}{-8}, \quad \text{This is a true statement; therefore, } a = -8.$$

8:

$$\frac{9x^4 - 72x}{3x^2 - 12} * \frac{x^2 + x - 2}{4x^3 + 8x^2 + 16x}, \text{ To multiply these rational expressions, factor.}$$

$$\frac{9x(x^3 - 8)}{3(x^2 - 4)} * \frac{(x + 2)(x - 1)}{4x(x^2 + 2x + 4)}, \quad \text{The terms need to be factored more.}$$

$$\frac{9x(x - 2)(x^2 + 2x + 4)}{3(x - 2)(x + 2)} * \frac{(x + 2)(x - 1)}{4x(x^2 + 2x + 4)}, \quad \text{Reduce.}$$

$$\frac{3}{1} * \frac{(x - 1)}{4}, \quad \text{Multiply.}$$

$$\frac{3(x - 1)}{4}$$

# TSI Assessment-Sample Questions

## Reading Comprehension

Page 1 and 2-Sample Questions  
Page 3-Solutions

### Multiple Choice-5 Questions

Faulty construction, earthquakes, sabotage, or war can cause dams to fail, taking a terrible toll on lives and property. \_\_\_\_\_, in 1972 a dam failure in Buffalo Creek, West Virginia, killed 125 people, and another in Rapid City, South Dakota, killed 237 and caused more than \$1 billion dollars in damages. According to a 1986 study by the Federal Emergency Management Agency, the United States has 1,900 unsafe dams in populated areas.

1. The most appropriate transition word/phrase for the blank above is
  - a. Finally
  - b. On the other hand
  - c. For example
  - d. Similarly

At some point in time, a *food allergy* or *food intolerance* will affect nearly everyone. You eat something, develop gas or have an unpleasant visit to the bathroom, and assume that it is a food allergy. One out of every three people today either say they have a food allergy or avoid something in their diet because they think they are allergic to it; in fact, only 3 percent of all children and 1 percent of all adults experience genuine allergic reactions to what they eat. Surprised? Most people are when they hear this.

2. According to the passage, the number of people who actually have food allergies is
  - a. one out of every three
  - b. three out of every one hundred children
  - c. 3 percent of all adults
  - d. Nearly everyone who develops gas or has an unpleasant bathroom visit

College students often face a challenge when trying to eat healthy foods. Some students live in dorms and do not have their own cooking or refrigeration facilities. Others live in crowded apartments where everyone forages in the refrigerator for everyone else's food.

3. The correct definition of forages in the above passage is
  - a. eats
  - b. glances
  - c. searches
  - d. shares
  
4. By saying "everyone forages in the refrigerator for everyone else's food," the author suggests that
  - a. Students buy nutritious food, but it often spoils before they eat it.
  - b. Students eagerly share food with roommates.
  - c. Students in apartments do not take time to properly organize their food.
  - d. Students who live together have little control over who eats the food.

Childbirth in Colonial America was a difficult and sometimes dangerous experience for women. During the seventeenth and eighteenth centuries, records show that between 1 and 1.5 percent of all births ended in the mother's death as a result of exhaustion, dehydration, infection, hemorrhage, or convulsions. Since the typical mother gave birth to between five and eight children, her lifetime chances of dying in childbirth ran as high as one in eight. This meant that if a woman had eight female friends, it was likely that one would die in child birth.

5. The tone of the passage is
  - a. academic
  - b. nostalgic
  - c. jovial
  - d. optimistic



## SOLUTIONS

1. C      Choice (C) is correct. **For example**, transitions into specific examples of the terrible toll of faulty construction, earthquakes, sabotage or war. Choice (A) is incorrect. **Finally** is used to transition into a conclusion. Choice (B) is incorrect. **On the other hand** is used to show contrast. Choice (D) is incorrect. **Similarly** is used to transition to another comparable statement.
2. B      Choice (B) is correct. The passage says, "...only 3 *percent* of all children..." and "*three out of every one hundred* children" is synonymous. Choice (A) is incorrect because *one out of every three* would be 33-1/3 percent. Choice (C) is incorrect because passage says, "...and **1** percent of **all adults**..." Choice (D) is incorrect because these unpleasant symptoms are assumed by suffers to indicate a food allergy, but allergy tests have not been recorded.
3. C      Choice (C) is correct. **Forages** means to search or to seek. Choice (A) is incorrect because usually one does not **eat** "in" the refrigerator. Choice (B) is incorrect because **glance** means to look quickly, not seriously search for food. Choice (D) is incorrect because **shares** cannot be logically substituted for **forages** as the appropriate synonym.
4. D      Choice (D) is correct. The author suggests or implies that it is common behavior for students sharing one refrigerator space to eat food that is not their own. Choices (A), (B), (C) are incorrect because none of them reflects the reality of the human nature grabbing any available food if the person is hungry and faced with temptation.
5. A      Choice (A) is correct. Childbirth in Colonial America in the seventeenth and eighteenth centuries is an informative passage most likely found in a textbook. Data is the method of presentation in **academics**. Choice (B) is incorrect. **Nostalgic** means to look back to pleasant past circumstances. Choice (C) is incorrect. **Jovial** means happy. Choice (D) is incorrect. **Optimistic** means to be positive, cheerful.

# TSI Assessment-Sample Questions

## Writing

Page 1 and 2-Sample Questions

Page 3-Solutions

### Multiple Choice-5 Questions

Select the best version of the underlined part of the sentence. If you think the original sentence is best, choose the first answer.

1. The microwave's buzzer sounded dinner was ready.
  - a. The microwave sounded dinner was ready
  - b. The microwave sounded, dinner was ready.
  - c. The microwave sounded since dinner was ready.
  - d. The microwave sounded, since dinner was ready.
  
2. By setting aside time to study everyday, a grade point average is sure to improve.
  - a. By setting aside time to study everyday, a grade point average is sure to improve.
  - b. By setting aside time to study everyday, grades are sure to improve.
  - c. By setting aside time to study everyday, improvement of grade point average is sure.
  - d. By setting aside time to study everyday, a student can improve his or her grade point average.
  
3. Neither of the brothers has seen their children in ten years.
  - a. Neither of the brothers has seen their children in ten years.
  - b. Neither of the brothers have seen their children in ten years.
  - c. Neither of the brothers has seen his children in ten years.
  - d. Neither of the brothers have seen his children in ten years.
  
4. Inviting the whole campus. The Faculty of Temple College hosted a reception.
  - a. Inviting the whole campus. The Faculty of Temple College hosted a reception.
  - b. Inviting the whole campus, the faculty of Temple College hosted a reception.
  - c. Inviting the whole campus, the Faculty of Temple College hosted a reception.
  - d. Inviting the whole campus; The Faculty of Temple College hosted a reception.

Think about how you would rewrite the following sentence according to the directions given, and then choose the best answer. Keep in mind that your revision should not change the meaning of the original sentence.

5. Unsaturated fats, which come from plants and include most oils, are generally liquid at room temperature.

Rewrite, beginning with the appropriate word

Generally liquid at room temperature.

- a. plants come from...
- b. oils come from...
- c. liquids come from...
- d. unsaturated fats come from...

### **WritePlacer Sample Prompt**

*“If you want happiness for an hour, take a nap; if you want happiness for a day, go fishing; if you want happiness for a year, inherit a fortune, but if you want happiness for a lifetime, help somebody.” Chinese Proverb*

### **Assignment Question**

*Are we in control of our own happiness? Explain why or why not.*

## SOLUTIONS

1. C Choice (C) is correct. By using the subordinate conjunction **since** to create a subordinate clause for the second part, a complex sentence is created. Choice (A) is incorrect. The sample sentence is a run-on or fused sentence. Two independent clauses are fused or run together. Choice (B) is incorrect. Using a comma without a coordinating conjunction creates a comma splice. Choice (D) is incorrect. When the dependent clause comes second in a complex sentence, do not use a comma.
2. D Choice (D) is correct. The subject should be “student. Student is a subject who can set aside time to study. That singular subject, **student**, agrees with the singular pronoun, **his or her**. Choice (A) is incorrect. The sample sentence begins with a dangling modifier and also has an error in pronoun and antecedent agreement. “**grade point average**” cannot be the subject because it cannot set aside time to study. Choice (B) is incorrect. The subject, **grades**, cannot set aside time to study. Choice (C) is incorrect. The subject, **improvement**, cannot set aside time to study.
3. C Choice (C) is correct. The subject, **neither**, is singular and needs a singular verb, **has**. The singular pronoun, **his**, agrees with the singular subject, **neither**. Choice (A) is incorrect. The sample sentence has an error in pronoun and antecedent agreement. Singular subject, **neither**, does not agree with plural pronoun, **their**. Choice (B) is incorrect. Singular subject, **neither**, does not agree with plural verb, **have**, and does not agree with plural pronoun, **their**. Choice (D) is not correct. Singular subject, **neither**, does not agree with plural verb, **have**.
4. B Choice (B) is correct. The introductory participle phrase is set off with a comma and the common noun subject, **faculty**, is not capitalized. Choice (A) is incorrect. The first group of words is a verbal fragment, and **Faculty** should not be capitalized. Choice (C) is incorrect. **Faculty** should not be capitalized. Choice (D) is incorrect. A semi-colon is used to connect two independent clauses. A semi-colon has the same value as a period. Also, do not capitalize **The** and **Faculty**.
5. Choice (D) is correct. **Unsaturated fats** are what become liquid at room temperature. Choices (A), (B), and (C) are incorrect because none of these restate the original statement correctly.