9th Grade Standards Practice I

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Which equation represents the relationship "3 less than a number is –6?"
a. $n - 3 = -6$
b. $3 - n = -6$
c. $3 + n = -6$
d. $n - 6 = 3$

____ 2. Leroy works part time for a moving company. One day he had to move 34 boxes from a truck to inside a house. After moving some boxes, he took a break and told his boss that he has only 15 more boxes to move. Which equation can be solved to find how many boxes Leroy moved before his break?

a. $15 + 34 = x$
b. $15 - x = 34$
c. $34 - x = 15$
d. $34 + x = 15$

____ 3. A painter is working on a canvas that has a total area of 338 square inches. The canvas is *x* inches wide and twice as long as it is wide. Find the value of *x*.

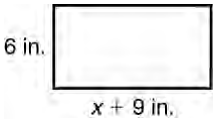
a. 13
b. 18.4
c. 112.7
d. 169

____ 4. A rectangle with an area of 124 cm^2 has a length that is 4 times the width. What is the width? (Round your answer to the nearest tenth.)

a. 5.6 cm
b. 11.1 cm
c. 22.3 cm
d. 44.5 cm

____ 5. A printer holds 500 sheets of paper. After printing it held 210 sheets. Which equation can be used to find how many sheets were printed?
a. $s - 500 = 210$
b. $210 + 500 = s$
c. $210 - 500 = s$
d. $500 - s = 210$

____ 6. The area of the rectangle shown is more than 72 square inches. Which inequality can be used to find *x*?



a. $12 + 2(x + 9) > 72$
b. $12 + 2(x + 9) \geq 72$
c. $6(x + 9) > 72$
d. $6(x + 9) \geq 72$

____ 7. John is considering accepting one of two sales positions. ABC Company offers a yearly salary of $45,000. XYZ Company offers a yearly salary of $38,000 plus a 2% annual commission on sales. For what amount of sales *s* is the salary at XYZ Company greater than the salary at ABC Company?
a. $s > 7000$
b. $s > 35,000$
c. $s > 70,000$
d. $s > 350,000$

____ 8. The maximum capacity of a theater is 471 people. So far, 254 people are seated in the theater. Which inequality can be solved to show the number of people *p* that can still enter the theater?
a. $254 + p < 471$
c. $254 + p > 471$

b. $254 + p \leq 471$ d. $254 + p \geq 471$

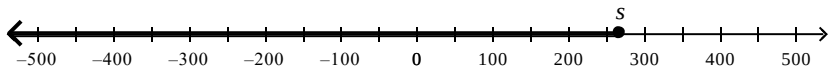
____ 9. Which inequality represents the following statement?
"A number increased by 4 is at most 15."
a. $n + 4 < 15$ c. $n + 4 \leq 15$
b. $4n < 15$ d. $4n \leq 15$

____ 10. Jeremy receives a base salary of $25,000 plus 5% commission on his sales. Jeremy received a total salary of $45,000 last year. How much were his total sales?

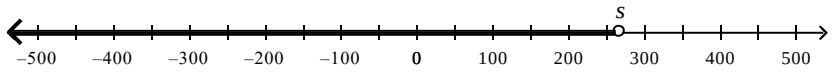
a. $20,000 c. $400,000
b. $70,000 d. $900,000

____ 11. A radioactive isotope decays exponentially. The time it takes for half of the amount to decay is called the isotope's half-life. A certain isotope has a half-life of 12 hours. If after 72 hours there are 0.325 mg left, what was the isotope's initial mass?
a. 5,324.8 mg c. 0.289 mg
b. 20.8 mg d. 1,331.2 mg

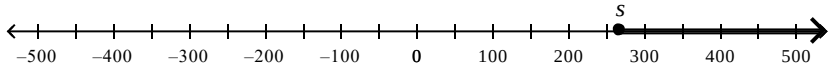
____ 12. Sam earned $450 during winter vacation. He needs to save $180 for a camping trip over spring break. He can spend the remainder of the money on music. Write an inequality to show how much he can spend on music. Then, graph the inequality.
a. $180 + s \leq 450;\ s \leq 270$



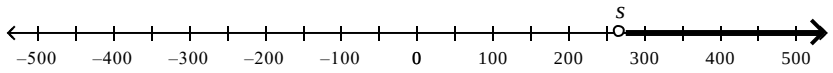
b. $450 + s < 180;\ s < 270$



c. $180 + s \geq 450;\ s \geq 270$

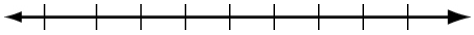


d. $450 + s > 180;\ s > 270$

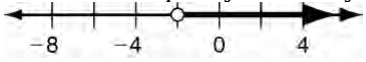


Short Answer

1. Solve the compound inequality and graph the solutions.
$-a + 8 < -2$ OR $-3a > -9$



2. Write the inequality shown by the graph.



3. Write an equation to represent the relationship "a number decreased by 11 is equal to –18." Then solve the equation.

4. Justin is on the TV game show *You Can Price Like a Pro*. He is playing the Grocery Store Game. In this game, Justin is shown six grocery-store items without being shown the prices. He must buy multiples of items until he has a total between $20 and $21 inclusive. If he doesn't reach $20 with his first item, he continues buying items and adding to his total, until he either wins or goes over $21.

   Justin began by buying six bottles of hand lotion. One bottle of lotion costs $2.99. That gives Justin a running total of $17.94. He now considers buying packages of gum.

   Part A: Justin guesses that one package of gum costs $0.50. Write a compound inequality to find how many packages he should buy.

   Part B: Solve your compound inequality from part a. Write your answer as a compound inequality.

   Part C: Justin can only buy whole packages of gum. Assuming each package actually costs $0.50, how many could he buy to win the game?

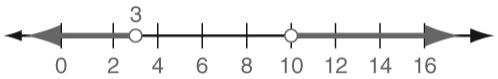
9th Grade Standards Practice I
Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1
   DOK: DOK 1
2. ANS: C PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1
   DOK: DOK 1
3. ANS: A PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1
   DOK: DOK 1
4. ANS: A PTS: 1
   NAT: NT.CCSS.MTH.10.9-12.A.CED.1 | NT.CCSS.MTH.10.9-12.A.REI.4
   DOK: DOK 1
5. ANS: D PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1
   DOK: DOK 2
6. ANS: C PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1
   DOK: DOK 2
7. ANS: D PTS: 1
   NAT: NT.CCSS.MTH.10.9-12.A.CED.1 | NT.CCSS.MTH.10.9-12.A.REI.3
   DOK: DOK 2
8. ANS: B PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1
   DOK: DOK 2
9. ANS: C PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1
   DOK: DOK 2
10. ANS: C PTS: 1
    NAT: NT.CCSS.MTH.10.9-12.A.REI.3 | NT.CCSS.MTH.10.9-12.A.CED.1
    DOK: DOK 2
11. ANS: B PTS: 1 REF: a0392eaf-9631-11dd-8a40-001185f11039
    OBJ: Using an Exponential Decay Function NAT: NT.CCSS.MTH.10.9-12.A.CED.1
    LOC: MTH.C.10.07.11.01.003 | MTH.C.10.07.01.01.006 | MTH.C.10.07.11.02.002
    TOP: Exponential Functions KEY: exponential function | graph | decay
    DOK: DOK 2
12. ANS: A PTS: 1 REF: 1015541e-4683-11df-9c7d-001185f0d2ea
    NAT: NT.CCSS.MTH.10.9-12.A.CED.1 | NT.CCSS.MTH.10.9-12.A.REI.3
    LOC: MTH.C.10.08.02.01.005 | MTH.C.10.08.02.01.007 TOP: Graphing and Writing Inequalities
    KEY: inequalities | graph | number line DOK: DOK 2

SHORT ANSWER

1. ANS:
   $a < 3$ OR $a > 10$

   PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1 | NT.CCSS.MTH.10.9-12.A.REI.3
   DOK: DOK 1

2. ANS:
   $x > -2$

   PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1 DOK: DOK 1
3. ANS:
   $n - 11 = -18;\ n = -7$

   PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.REI.3 | NT.CCSS.MTH.10.9-12.A.CED.1
   DOK: DOK 2
4. ANS:
   Part A: $20 \le 0.50p + 17.94 \le 21$

   Part B: $4.12 \le p \le 6.12$

   Part C: 5 or 6 packages

   PTS: 1 NAT: NT.CCSS.MTH.10.9-12.A.CED.1 | NT.CCSS.MTH.10.9-12.A.REI.3
   DOK: DOK 2