Test 23 (Lesson 90), Form A **SHOW YOUR WORK** **Name:** _____

1. After riding her bike at 20 miles per hour, Angela got off and walked her bike the rest of the way at 5 miles per hour. If the total trip was 70 miles and took a total of 5 hours, how far did she ride and how far did she walk?

2. Use the formula $PV = nRT$ to find the pressure of 18 liters of 0.416 mole of a gas at a temperature of 600 K ($R = 0.0821$).

3. Heather was thinking of two numbers. The second number was 5 less than 3 times the first. Also, 10 times the first number was 5 less than 5 times the second. What two numbers was Heather thinking of?

4. Graph on a number line: $-2 < x + 2 \leq 4$; $D = \{\text{Reals}\}$

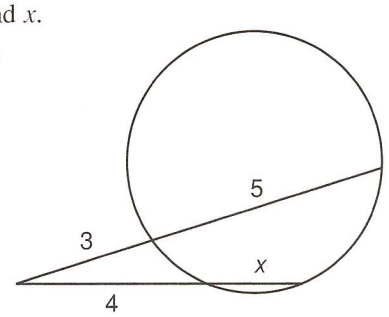
5. Solve: $\begin{cases} BT_D + 5T_D = 25 \\ BT_D - 5T_D = 15 \end{cases}$

6. Solve: $\begin{cases} x - 2y + 2z = 6 \\ x + y - z = 0 \\ 3x - 2y - 2z = -2 \end{cases}$

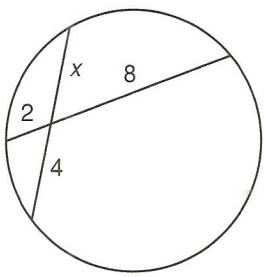
7. Solve: $\sqrt{x} - 1 = \sqrt{x - 11}$

8. Find x.

(a)



(b)



9. (a) Add: $3\angle 30° - 8\angle -240°$

(b) Write $3R - 7U$ in polar form.

10. Find the distance between $(-8, 4)$ and $(3, 2)$.

11. Use unit multipliers to convert 38 square kilometers to square miles.

12. Solve $4 - 3x = 2x^2$ by using the quadratic formula.

13. Find x: $\frac{a}{c} - y = m\left(\frac{1}{p} + \frac{k}{x}\right)$

14. Find the equation of the line that passes through $(-6, 1)$ and is parallel to $3y - 4x = -9$.

Simplify:

15. $\frac{\left(a^3\right)^{x+y} a^{x-2y} c^{2x}}{c^{3x/2}}$

16. $\frac{m}{1 - \frac{mp}{p + \frac{p}{m}}}$

17. $\frac{3 + 4i}{-2i - 5}$

18. $4i^2 - 2i + 3i^3 - \sqrt{-2}\sqrt{2} + \sqrt{-4}\sqrt{-4}$

19. $\frac{5 + \sqrt{5}}{8 - 2\sqrt{5}}$

20. $\sqrt[4]{4\sqrt[3]{2}}$