

1. Solve $3 + \frac{1}{4}x = -7$. Check your answer.

1. _____

For #2 and #3, use the accompanying information to solve.

If the air temperature is greater than the dew point, clouds do not form. If the air temperature cools below the dew point, either fog or clouds appear. Suppose the air temperature x miles high is given by $T(x) = 90 - 29x$ and the dew point x miles high is given by $D(x) = 70 - 5.8x$.

2. At what altitude are the air temperature and the dew point equal? (Round answer to the nearest hundredth of a mile.)

2. _____

3. Determine the altitudes where clouds may form.

3. _____

4. Solve $4 - \frac{1}{2}x = x + 1$ graphically.

4. _____

5. Solve $\frac{3}{4}(x + 2) - 1 = \frac{5}{4}x - 3$.

5. _____

6. The length of a rectangular pen is 6 feet longer than twice its width. If the rectangle has a perimeter of 84 feet, what are the dimensions of the rectangular pen?

6. _____

7. Solve $6x - 2y = 11$ for y . Let $y = f(x)$ and write a formula for $f(x)$.

7. _____

8. Solve the inequality $5 - 2x < x + 4$. Write your answer in interval notation.

8. _____

9. Solve the inequality $\frac{3}{2}(x + 4) - 2 \leq \frac{1}{4}x + 2$. Write your answer in interval notation.

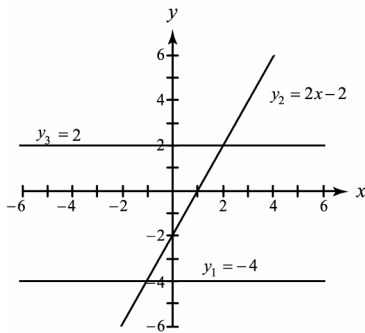
9. _____

In #10 and #11, use the accompanying information to solve.

The weight of a walleye in pounds, W , can be estimated by the function $W(x) = 1.11x - 23.3$, where x is the length of the fish in inches. A fish must be released if it weighs less than 5 lbs. or more than 12 lbs.

10. Approximate the lengths of walleyes that can be kept. Round to the nearest tenth. Express answer in interval notation. 10. _____
11. Approximate the lengths of walleyes that must be released. (Assume $0 < x < 35$.) Round to the nearest tenth. Express answer in interval notation. 11. _____
12. Use the table feature on your graphing calculator to solve the compound inequality $-6 \leq 3x < 9$. Write your answer in interval notation. 12. _____

For #13 and #14, use the following figure to solve the equation and inequality.



13. Solve $y_2 = y_3$. 13. _____
14. Solve $y_1 < y_2 \leq y_3$. Write your answer in interval notation. 14. _____

In #15 and #16, solve the compound inequality.

15. The formula $C = \frac{5}{9}(F - 32)$ is used to convert Fahrenheit temperature to Celsius temperature. The temperature in Houston, Texas varied between $27^\circ F$ and $109^\circ F$ in the year 2000. Determine this temperature range in Celsius. Round to the nearest tenth. 15. _____
16. If the temperature on the ground is $60^\circ F$, then the air temperature x miles high is given by $T(x) = 60 - 29x$. Determine the altitudes where the air temperature is between $20^\circ F$ and $40^\circ F$. Round to the nearest hundredth. 16. _____
17. The distance between a number and -2 is 5 units.
(a) Write an absolute value equation that models this situation. 17. (a) _____
(b) Solve the equation. (b) _____
18. Lauren's average test score is 86. Each individual test score has been within 7 points of the average.
(a) Write an absolute value inequality that models this situation. 18. (a) _____
(b) Solve this inequality. Write your answer in interval notation. (b) _____
19. Solve $|3 - 2x| - 1 > 4$. Write your answer in interval notation. 19. _____
20. The formula for the area of a trapezoid is $A = \frac{1}{2}h(a + b)$.
Solve this formula for h . 20. _____