(AP) Pre-Calculus Summer Assignment

Section 1

Solve each equation below.

1. $7x - 3(x+6) = -2$

2. $x^2 + 5x = 0$

Write the equation for each line below.

3. Write the equation for the line crossing the point $(0, -4)$ and with slope $= 2$.

4. The line crossing the points $(1, 1)$ and $(2, -1)$.

Answer each question below.

5. In the equation $w = 3vu + q$, find the value of w when $q = -1$, $u = 2$, and $v = -3$.

6. Solve for x in the equation $z = bx + cy$.

7. Find $f(-2)$ for the function $f(x) = 2x^2 - 8x$.

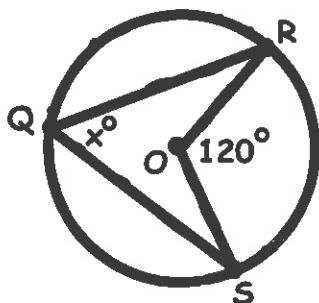Graph each two-variable equation below.
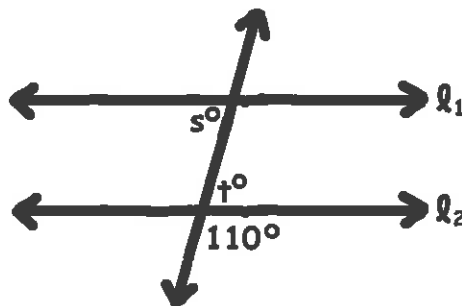
8. $y + x = 4$

9. $y = -2x^2$

10. $x^2 + y^2 = 9$

Find the missing quantities in each picture below. Make sure to fully simplify your answers.
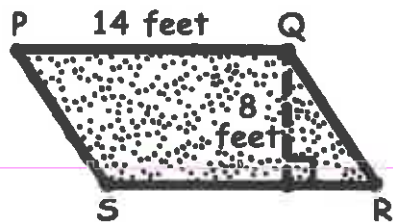
11. Find x

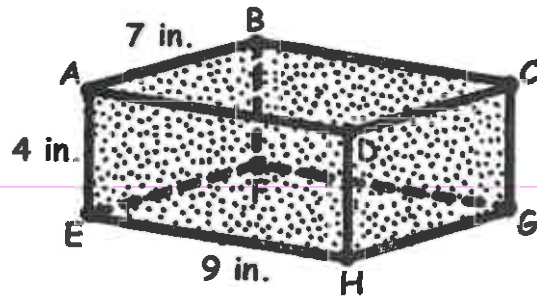12. If $\ell_1 \parallel \ell_2$, find $s + t$.

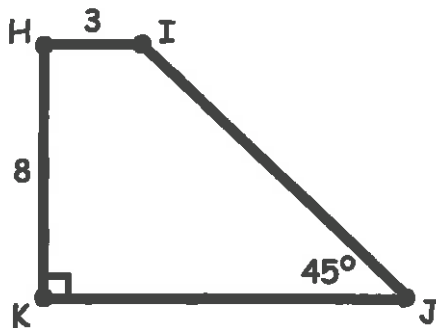Calculate the following quantity in each figure below.

13. The area of □ *PQRS*

14. The volume of the rectangular solid

15. The perimeter of quadrilateral *HIJK*. Estimate your answer to 2 decimal places.

Section 2

Solve each equation below.

16. $|x-2|=14$

17. $x^2+6x-7=0$

Solve the equation below using the quadratic formula.

18. $x^2+x-3=0$

Solve the system of equations below.

19. $\begin{cases} x+y=19 \\ 5x-y=23 \end{cases}$

20. $\begin{cases} 4x+3y=18 \\ x+y=3 \end{cases}$

Solve the inequality below.
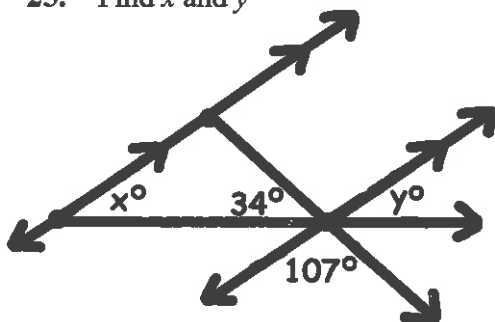
21. $-7x+5<-4x-13$

22. $\dfrac{3(x+7)}{5}>2x$

Answer each question below.
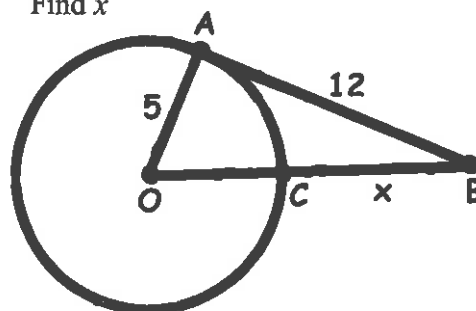
23. Solve for n in the equation $bn=n+a$.

24. Simplify the expression $\dfrac{x^2-y^2}{x^2-2xy+y^2}$.

Find the missing quantities in each picture below. Make sure to fully simplify your answers.
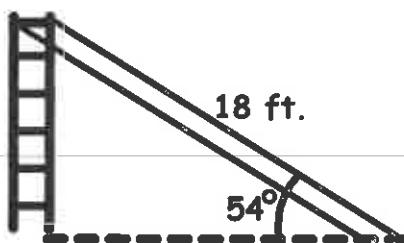
**25.** Find x and y

26. Find x

Use a trigonometric ratio to solve the word problem below.

27. The playground in the local park has a tall slide that is 18 feet long. If the end of the slide forms a $54°$ angle with the ground, how tall is the slide? Estimate your answer to 2 decimal places.

28. In $\triangle MNG$, $m\angle M = 4x$, $m\angle N = 3x+12$, and $m\angle G = x-8$ (where $x > 0$). Find $m\angle N$. What is the longest side of $\triangle MNG$?

State which theorem can be used to prove that the pair of triangles below is congruent. If no method applies, say "none."

29.
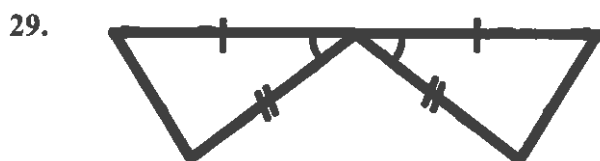
State which theorem can be used to prove that the pair of triangles ($\triangle ABC$ and $\triangle AEF$) below is similar. If no method applies, say "none."

30.