

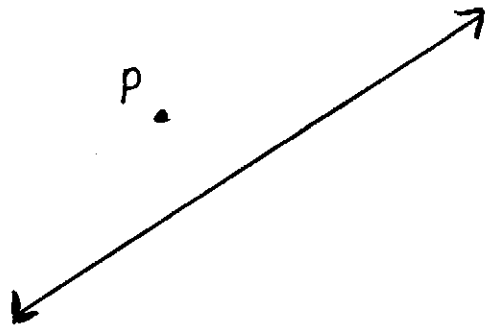
Summer Math Problems

For

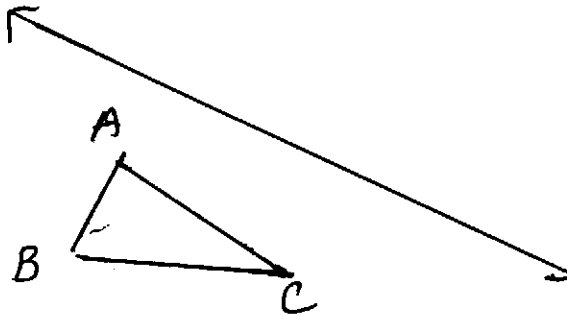
**Pre-Calculus
(Prerequisite Skills)**

Prerequisite Skills for Pre-Calculus

1. Find the image of P reflected over the line m.



2. Find the image of the triangle ABC reflected over line m.



3. Factor $x^2 - 1$
4. Factor $x^2 - 5x - 6$
5. Factor $x^3 + 8x^2 + 7x$
6. If $f(x) = x^2 + 4$, find $f(-3)$.
7. If $f(x) = x^2 - 2x + 1$, find $f(1-h)$.

Evaluate for $x = -3$

8. $x^2 - 2x - 5$

9. $\frac{-5x}{x^2}$

10. $\sqrt{6x+3x}$

11. $|x-4|$

12. The two legs of a right triangle measure 16 units and 12 units. Find the height of the hypotenuse.

13. The hypotenuse of a right triangle measures 29 units. Find the length of one leg if the other leg measures 21 units.

14. Give an example of the associative property of multiplication.

15. Give an example of the commutative property of addition.

Factor.

16. x^4-81

17. $x^2+6x-16$

18. x^3+3x^2-4x

19. $6x^2-11x-10$

20. $3x^3+81$

Find the least common multiple of each set below.

21. $2a, 3ab^2, 12b$

22. $x-3, x+2, x^2+2x$

23. $x-1, x+1, x^2-1$

Find the value of n that makes each trinomial a perfect square.

24. $x^2 + 12x + n$

25. $y^2 - ny + 100$

26. $k^2 - 5k + n$

27. Solve $x^2 + 2x = 48$ by completing the square.

28. Solve $4x - 3y = -1$
 $-2x + 2y = 2$

29. Solve $x^2 - y = 0$
 $3x - y - 2 = 0$

Write the following expressions in scientific notation.

30. 93,000,000

31. 0.0000000305

Write each expression below in decimal notation.

32. 1.3×10^5

33. 9.908×10^{-6}

34. Find $(1/2)^{50}$

35. Find $\frac{10^4 + 5(10)}{4(10)^3}$

36. Find $(x-3)^2$

37. Find $(3x-y)^2$

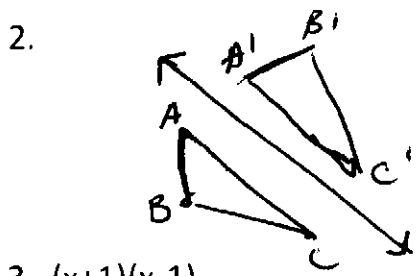
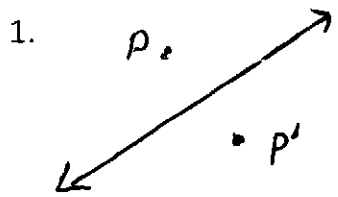
38. Find $\sin(\pi/4)$ and $\sin(\pi/8)$

39. Find $\cos(\pi/4)$ and $\cos(\pi/8)$

40. Rewrite $\sum_{n=1}^5 (n-1)$ in expanded form.

41. Evaluate $\sum_{n=1}^5 2n$

Answers for Summer Math Problems—Pre-Calculus



3. $(x+1)(x-1)$

4. $(x-6)(x+1)$

5. $x(x+7)(x+1)$

6. 13

7. h^2

8. 10

9. $5/3$

10. 4

11. 7

12. 20 units

13. 20 units

14. Sample: $-8 \cdot (-2 \cdot 3) = (-8 \cdot -2) \cdot 3$

15. Sample: $-8 \cdot (-2+3) = -8(3+-2)$

16. $(x-3)(x+3)(x^2+9)$

17. $(x+8)(x-2)$

18. $x(x-1)(x+4)$

19. $(3x+2)(2x-5)$

20. $3(x+3)(x^2-3x+9)$

21. $12ab^2$

22. x^3-x^2-6x

23. x^2-1

24. 36

25. 20

26. $25/4$

27. $\{6, -8\}$

28. $\{(2, 3)\}$

29. $\{(1, 1), (2, 4)\}$

30. 9.3×10^7

31. 3.05×10^{-8}

32. 130,000

33. 0.000009908

34. $(1/2)^{50}$ or about 8.9×10^{-16}

35. 2.5125

36. x^2-6x+9

37. $9x^2-6xy+y^2$

38. 0.7071, 0.3827

39. 0.7071, 0.9239

40. $0+1+2+3+4$

41. 30