1. Factoring is one of the most critical skills you will learn in Algebra 1. In your own words, describe what it means to *factor a polynomial*. What actually happens when you factor an expression? Try use vocabulary words like binomial, terms, multiply, etc. in your explanation.

Factor out the GCF, if possible. Write the answer in factored form on the blank provided.

2. $2x + 36$

3. $6r^3 - 7r^2$

4. $5k - 11$

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5. $-9t + 3t^2$

6. $4x^3 + 8x^2 - 2x^3 + 20x$

7. $5 + 15x^2 - 25x$

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Factor each polynomial. Write the answer in factored form on the blank provided.
Hint: Factor each trinomial into 2 binomial factors.

8. $x^2 + 12x + 35$

9. $w^2 - 11w + 24$

10. $d^2 + 4d = 12$

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_____

11. $z^2 + 7z$

12. $g^2 = 2g + 8$

13. $y^2 - 13y + 40$

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Factor each polynomial. Write the answer in factored form on the blank provided.
Hint: Factor each trinomial into 2 binomial factors where a ≠ 1.

14. $5m^2 - m - 6$

15. $3p^2 + 14p + 16$

16. $6h^2 - 11h - 2$

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_____

_____

17. $3v^2 - 13v + 10$

18. $8r^2 = 42r$

19. $5g^2 = 4g + 12$

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SOLVE each polynomial by factoring. Check for the GCF first. Write the solutions on the blanks provided.

20. $x^2 + 10x + 24 = 0$

21. $k^2 = 2k + 15$

22. $21n^2 = 9n$

(_____, _____) & (_____, _____)   (_____, _____) & (_____, _____)   (_____, _____) & (_____, _____)

23. $2m^2 - 13m - 24 = 0$

24. $3x^2 + 2x - 5 = 0$

25. $2x^2 + 22x + 48 = 0$

(_____, _____) & (_____, _____)   (_____, _____) & (_____, _____)   (_____, _____) & (_____, _____)

26. **On a graph, what do the solutions of a quadratic equation represent? Write the answer in a complete sentence.**

Factor each polynomial and find the solutions. Write the factored form of the polynomial and the solutions on the blanks provided.
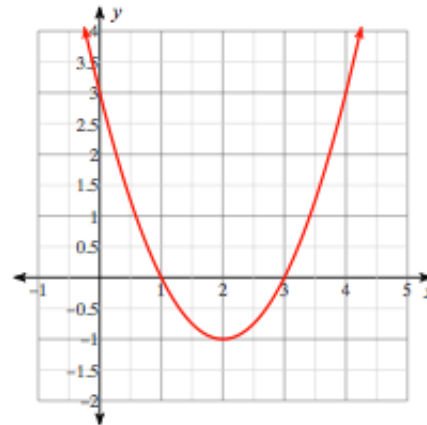
27) $y = x^2 - 2x - 3$
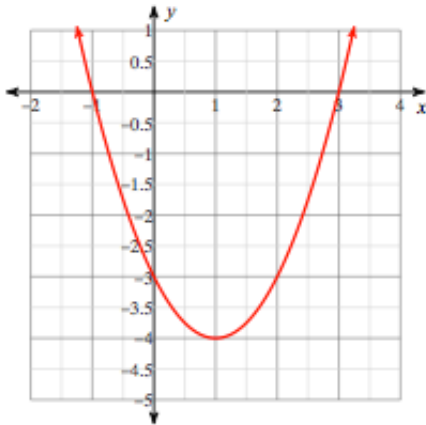
28) $y = x^2 - 4x + 3$

_____

(_____ , _____) & (_____ , _____)

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(_____ , _____) & (_____ , _____)

29) $y = 2x^2 - 4x$
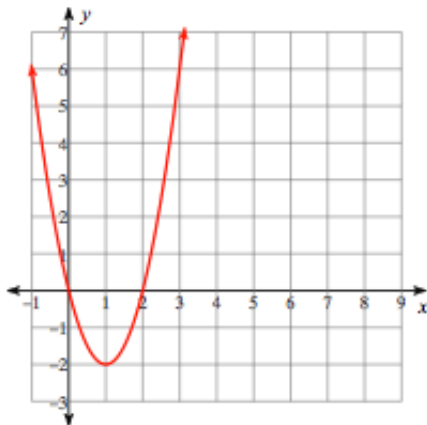
30) $y = -x^2 + 4x$
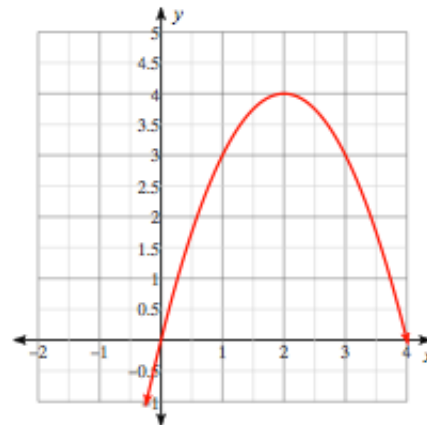
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(_____ , _____) & (_____ , _____)

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(_____ , _____) & (_____ , _____)

Factor each polynomial, if possible. Check for the GCF first. Write the answer in factored form on the blank provided. *Hint: Factor each trinomial using the difference of two squares.*

31. $f^2 - 16$

32. $9x^2 - 1$

33. $m^2 + 25$

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34. $81 - 4z^2$

35. $2g^2 - 72$

36. $4h^2 + 100$

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Factor each polynomial, if possible. Check for the GCF first. Write the answer in factored form on the blank provided. *Hint: Factor each trinomial using perfect square trinomials.*

37. $s^2 + 24s + 144$

38. $36z^2 - 60z + 25$

39. $9k^2 + 24k + 16$

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40. $49 + 14z + z^2$

41. $9v^2 + 4v + 1$

42. $x^3 + 6x^2y + 9xy^2$

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