SM2H 3.2 Factoring 2018-19

Find two numbers that multiply to the first number and add to the second number.

1. Multiply to 15 and add to 8
2. Multiply to 10 and add to -7
3. Multiply to 20 and add to -9

4. Multiply to -8 and add to -2
5. Multiply to -18 and add to 7
6. Multiply to -6 and add to 5

Factor out the greatest common factor. If the leading coefficient is negative, factor out a negative.

7. $2x^3 + 12x^2 - 8x$

8. $-15x^3y^2 + 12xy - 18xy^3$

Factor each polynomial by grouping. Don't forget to factor out the GCF first, if necessary.

9. $2h^3 - 5h^2 + 8h - 20$
10. $g^3 - 3g^2 - 5g + 15$
11. $3x^2 + 3x - 5xy - 5y$

Simplify

12. $(z-5)(z+2)$
13. $(v-6)(v-2)$

Factor each polynomial. Don't forget to factor out the GCF first, if there is one. If the polynomial is prime, say so.

14. $z^2 - 3z - 10$
15. $v^2 - 8v + 12$

16. **Compare the questions and answers to #12 and #14, then compare the answer to #13 and #15. What do you notice about them?**

Factor each polynomial. Don't forget to factor out the GCF first, if there is one. If the polynomial is prime, say so.

17. $r^3 + 3r^2 - 54r$

18. $x^2 - 36$

19. $3y^2 + 21y + 36$

20. $-2a^2 + 14a + 36$

21. $4a^2 + 8ab + 4b^2$

22. $-3k^2 + 12$

23. $x^2 + 8xy + 12y^2$

24. $2m^3 - 32m^2 + 128m$

25. $n^2 - 4n - 30$

26. $q^2 + 8q + 7$

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

28. $6z^3 + 48z^2 - 120z$

29. $3r^3 + 33r^2 + 54r$

30. $6p^2 - 6p - 120$

31. $-2n^3 + 26n^2 - 80n$

Solve

32. $3x - 7 = 13$

33. $x + 32 = 4(x + 8) - 3x$

34. $x + 7 = x + 9$