

9.1 Greatest Common Factor

ALGEBRA

Write your
questions here!



FACTOR =

GREATEST COMMON FACTOR =

Factor out a number

$$6x + 9$$

$$3x^2 + 21x - 30$$

Factor out a variable

$$3x^2 - 5x$$

$$3p^4 + 15p^3 - 20p^2$$

Factor out both

$$8n^2 + 10n$$

$$12t^3 + 30t^2$$

ZERO PRODUCT PROPERTY

Use zero product property to solve these factored equations!

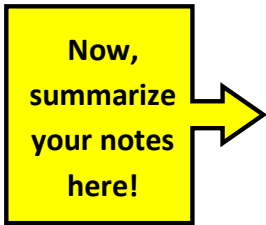
$$2(3x + 1) = 0$$

$$2x(3x + 1) = 0$$

$$4x(x - 4)(2x + 5) = 0$$

Solve the following by factoring.

SUMMARY:



9.1 Greatest Common Factor

PRACTICE

Factor the following if possible.

1. $12x - 15$

2. $4y^2 + 12y$

3. $7t^2 + 10t$

4. $5m^4 + 10m^2$

5. $x^2 - 9x$

6. $4x^2 - 10$

7. $7x + 12$

8. $3x^2 - 9x + 12$

9. $14x^3 + 7x^2 - 21x$

10. $8x^3 - 15x^2$

11. $5y^3 - 15y^2 + 3y$

12. $9n^2 - 15n$

Use the Zero Product Rule to solve the following factored equations.

13. $3x(x + 5) = 0$

14. $0 = (x - 2)(x + 3)$

15. $2(x - 1) = 0$

16. $0 = (2t + 1)(t - 7)$

17. $(3d - 2)(2d + 5) = 0$

18. $0 = 5x(2x + 7)(x - 8)$

19. $4x(x + 5)(2x - 1)(4x + 7) = 0$

20. $0 = 2(r + 3)(r - 2)(3r + 1)$

Solve the following by factoring.

21. $3x^2 - 12x = 0$

22. $0 = 5x^2 + 25x$

23. $4a^2 - 10a = 0$

24. $3x^2 = 9x$

Solve the following by factoring.

25. $15g + 6g^2 = 0$

26. $21y = 6y^2$

27. $8x^2 = 20x$

28. $0 = 4h + 2h^2 + 12h$

29. $3x^2 - 12x = 3x$

30. $2c^2 = 5c^2 + 18c$

Answer the following.

31. Simplify

$(3x^2 - 2x + 1) + (3x^2 - x + 5)$

32. Simplify $(3x - 2)(x + 5)$ 33. Solve $3(x + 5) = 0$

34. Write the equation of the linear function.

x	0	2	4	6
$f(x)$	15	12	9	6

35. Write the equation of the exponential function.

x	0	1	2	3
$f(x)$	4	12	36	108

36. If $f(x) = 12 - 3x$, find $f(3) + 1$

1. Factor $4x^3 - 10x^2 + 2x$

2. Solve $2x^2 = -18x$

3. Which of the following are possible dimensions for the rectangle shown below that has an Area of $3a^2 + 9a$.
CIRCLE ALL THAT APPLY!

(A) $l = 3, w = a^2 + 3a$

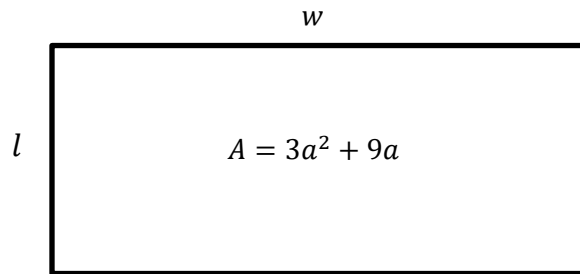
(B) $l = 3, w = 3a^2 + a$

(C) $l = 3a, w = a + 3$

(D) $l = a, w = 3a + 9$

(E) $l = 3a^2, w = a + 3$

(F) $l = \frac{1}{2}, w = 6a^2 + 18a$



4. Mr. Kelly sets off a bottle rocket from the ground. The height of the rocket over time is modeled by the function $h(t) = -16t^2 + 48t$, where t stands for time in seconds and the height off the rocket is measured in feet.

a. Find $h(2)$. Use a sentence to explain what it means in this context.

b. When will the rocket hit the ground?

EXIT TICKET –

Draw a square with side lengths of $2x$ units long. If the area of this square is $20x$, then find the value(s) of x ? (*hint: set up an equation for the area using $A = lw$.*)