

3.6 Reviewing Common Factors

MATHPOWER™ 10, Western Edition, pp. 118-120

Factor, if possible.

1. $4x + 28$

$= 4(x + 7)$

3. $6x - 32y$

$= 2(3x - 16y)$

5. $2ax + 10ay - 8az$

$= 2a(x + 5y - 4z)$ cannot factor

2. $3x + 17$

can't factor

4. $26x^2 - 13y$

$= 13(2x^2 - y)$

6. $2a^2 - 6a - 15$

Factor completely, if possible.

7. $8x^2 + 32y^3$

$= 8(x^2 + 4y^3)$

8. $10y - 5y^2 + 25y^3 = 5y(2 - y + 5y^2)$

9. $14rst + 7rs - 6t$

can't factor

10. $36xy - 12x^2y$

$= 12xy(3 - 4x)$

11. $4ab^2 + 2a^2c + 5b^2c^2$

can't factor.

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

$3xy(3x^2y - 4xy^2 + 6x + 5y)$

Factor, if possible.

13. $3x(y - z) - 2(y - z)$

$(3x - 2)(y - z)$

14. $5y(z + 3) + x(z - 3)$

no

15. $4t(r + 6) - (r + 6)$

$(4t - 1)(r + 6)$

16. $7(a + b) - 2x(a + b)$

$(7 - 2x)(a + b)$

17. $2x(3m - 5) - 3(5 - 3m) = 2x(3m - 5) + 3(-5 + 3m)$

$= (2x + 3)(3m - 5)$

Factor by grouping.

18. $(ax + by + xb) - ya = ax + xb + by - ya = x(a + b) - y(b + a) = (x - y)(a + b)$

19. $y^2 - x + y - xy = y^2 + y - x - xy = y(y + 1) - x(1 + y) = (y - x)(y + 1)$

20. $ab + 9 + 3a + 3b = ab + 3a + 9 + 3b$

$= a(b + 3) + 3(a + b)$

21. $t^2 - tr + 4r - 4t = t(t - r) - 4(r - t) = (t - 4)(t - r)$

22. $4x^2 + 6xy + 12y + 8x = 4x(x + 2) + 6y(x + 2) = (4x + 6y)(x + 2)$

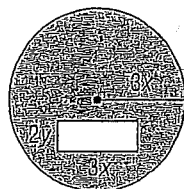
23. $3x^2y - 6x^2 - 2y + y^2 = 3x^2(y - 2) + y(-2 + y) = (3x^2 + y)(y - 2)$

24. $4ab^2 - 12a^2b - 3bc + 9ac$

$4ab(b - 3a) - 3c(b - 3a) = (4ab - 3c)(b - 3a)$

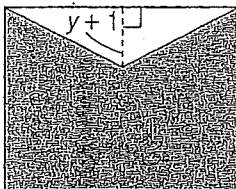
Write an expression for the area of each shaded region in factored form.

25.



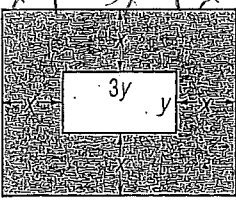
$= 3x(\pi 3x - 2y)$

26.



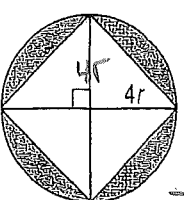
$3y = 12x^2y - 2x^2y + 2x^2 = 10x^2y + 2x^2 = 2x^2(5y + 1)$

27.



$(2x + y)(2x + 3y) - 3y^2 = 4x^2 + 6xy + 2xy + 3y^2 - 3y^2 = 4x^2 + 8xy = 4x(x + 2y)$

28.



$\pi(4r)^2 - (4r)^2 = 16\pi r^2 - 32r^2 = 16r(\pi r - 2r)$