

[Note: This worksheet is homework. Please keep it with your other homework for any homework checks.]

Factor the common (monomial) term. If there is no common term, clearly state so.

1. $8t - 24$

2. $-14y - 7$

3. $28u^2 - 14u$

4. $7s^2 + 9t^2$

5. $10ab + 10a^2b$

6. $32x^5 - 2x^3 + 6x$

7. $2x^2y^3z^4 - 4xy^2z^2 + 18x^3y^3z^3$

8. $-3abc^2 + 6a^3b - 12ac$

Factor the following polynomials by grouping.

1. $2x - 2y + 3x^2 - 3xy$

2. $2 - 2y + 2x - 2xy$

3. $a^2b + a + 4ab + 4$

4. $r^4s - r^3s^2 + 2sr - 2s^2$

5. $3x^2 - 12xy + 2x - 8y$

6. $5x + 2x^3 - 5 - 2x^2$

7. $6x + 12a + 2x^2 + 4xa$

Factor each of the following quadratic polynomials using one of the special forms. If it is not a special form, clearly state so and do not factor it.

$$x^2 + 2ax + a^2 = (x + a)^2$$

$$x^2 - 2ax + a^2 = (x - a)^2$$

$$x^2 - a^2 = (x + a)(x - a)$$

$$a^3 + 3a^2b + 3ab^2 + b^3 = (a + b)^3$$

$$a^3 - 3a^2b + 3ab^2 - b^3 = (a - b)^3$$

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

1. $x^2 + 6x + 9$

2. $49 - a^2$

3. $x^2 + 3x + 2$

4. $x^2 - 4x + 4$

5. $x^2 + x - 20$

6. $x^2 - 9$

7. $36 + 12x + x^2$

8. $5 - 10x + x^2$

9. $4x^2 + 4x + 1$

10. $25x^4 - 16$

11. $36x^2 - 24x + 4$

12. $100x^2 + 60x + 9$

13. $x^3 + 9x^2 + 27x + 27$

14. $1 + 27x^3$

15. $z^3 - 6z^2 + 12z - 8$

1. $8(t - 3)$
5. $10ab(1 + a)$

2. $-7(2y + 1)$
6. $2x(16x^4 - x^2 + 3)$

3. $14u(2u - 1)$
7. $2xy^2z^2(xyz^2 - 2 + 9x^2yz)$

4. No common term
8. $-3a(bc^2 - 2a^2b + 4c)$

1. $(x - y)(2 + 3x)$
5. $(x - 4y)(3x + 2)$

2. $(1 - y)(2 + 2x)$
6. $(5 + 2x^2)(x - 1)$

3. $(ab + 1)(a + 4)$
7. $(x + 2a)(6 + 2x)$

4. $(r - s)(r^3s + 2s)$

1. $(x + 3)^2$
5. Not a special form
9. $(2x + 1)^2$
13. $(x + 3)^3$

2. $(7 + a)(7 - a)$
6. $(x + 3)(x - 3)$
10. $(5x^2 + 4)(5x^2 - 4)$
14. $(1 + x)(1 - 3x + 9x^2)$

3. Not a special form
7. $(6 + x)^2$
11. $(6x - 2)^2$
15. $(z - 2)^3$

4. $(x - 2)^2$
8. Not a special form
12. $(10x + 3)^2$