

Name _____

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Additional Exercises 7.1**Form I**

The Greatest Common Factor and Factoring by Grouping

Find the greatest common factor of each list of monomials.

1. $10x^2$ and $15x$ 1. _____

2. $12y^3$ and $8y^2$ 2. _____

3. $16a^2$, $24a^3$ and $32a^4$ 3. _____

4. $6x^3y^2$, $15x^2y$ and $21x^4$ 4. _____

Factor the greatest common factor from the polynomial. If there is no factor other than 1 and the polynomial cannot be factored, so state.

5. $5x^2 + 20$ 5. _____

6. $6a^3 + 18a^2$ 6. _____

7. $3y^3 + 5y^2 + 6y$ 7. _____

8. $24x^4 + 18x^2 - 12x$ 8. _____

9. $16x^4y^3 - 20x^3y^2 + 12xy$ 9. _____

10. $4x^5y^2 + 10x^4y^4 - 14x^3y^3$ 10. _____

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Factor out the common binomial factor from each polynomial.

11. $x(y + 14) + 6(y + 14)$

11. _____

12. $a(b - 7) - 3(b - 7)$

12. _____

13. $11(x + 10) - y(x + 10)$

13. _____

Factor by grouping.

14. $xy + 4y + 2x + 8$

14. _____

15. $ab + 3b - 6a - 18$

15. _____

16. $xy - 5y + x - 5$

16. _____

17. $x^3 - 2x^2 + 2x - 4$

17. _____

18. $6ab + 2b + 9a + 3$

18. _____

19. $5xy + 2y - 10x - 4$

19. _____

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

20. _____

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Additional Exercises 7.1**Form II**

The Greatest Common Factor and Factoring by Grouping

Find the greatest common factor of each list of monomials.

1. $12x^2$ and $20x$ 1. _____

2. $45x^2y^2$ and $36xy$ 2. _____

3. $64a^9b^2$ and $88a^5b^9$ 3. _____

4. $24m^5n^3$, $18m^4n^4$ and $30m^3n^2$ 4. _____

Factor the greatest common factor from the polynomial. If there is no factor other than 1 and the polynomial cannot be factored, so state.

5. $14x^3 + 21x^2$ 5. _____

6. $6x^5 - 5x^7$ 6. _____

7. $24a^9 - 30a^5 + 15a^3$ 7. _____

8. $20x^6y^3 - 44x^5y^4 + 36x^3y^6$ 8. _____

9. $40x^8y^8 - 16x^3y^6 - 20x^6y^4$ 9. _____

10. $15x^6y^5 - 25x^4y^3 + 55x^3y^4 - 60x^2y^4$ 10. _____

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Factor out the common binomial factor from each polynomial.

11. $x(y - 7) - 2(y - 7)$ 11. _____

12. $a^2(b + 3) + 4(b + 3)$ 12. _____

13. $4a(8 + b) - (8 + b)$ 13. _____

Factor by grouping.

14. $x^3 - 2x^2 - 3x + 6$ 14. _____

15. $xy + 5y + 4x + 20$ 15. _____

16. $b^3 + 2ab^2 + 4b + 8a$ 16. _____

17. $6xy + 4y + 15x + 10$ 17. _____

18. $14xy - 2x - 21y + 3$ 18. _____

19. $4x^4 - 8x^3 - 3x + 6$ 19. _____

20. $20a^3 + 15a^2b - 16ab^2 - 12b^3$ 20. _____

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Additional Exercises 7.1**Form III**

The Greatest Common Factor and Factoring by Grouping

Find the greatest common factor of each list of monomials.

1. $28x^4$ and $24x^2$ 1. _____

2. $18x^8$, $45x^6$ and $21x^4$ 2. _____

3. $12x^6y^4$, $30x^9y^2$ and $84x^5y^5$ 3. _____

Factor the greatest common factor from the polynomial. If there is no factor other than 1 and the polynomial cannot be factored, so state.

4. $21y^3 - 9y^2 + 12y$ 4. _____

5. $32x^5 + 24x^3y - 96xy^3$ 5. _____

6. $20a^3 - 15a^2 + 5a$ 6. _____

7. $48x^8y^9 + 40x^6y^6 + 64x^4y^3$ 7. _____

8. $16m^3n^3 - 48n^2n - 64mn^2$ 8. _____

Factor out the common binomial factor from each polynomial.

9. $x^2(x-3) + 6(x-3)$ 9. _____

10. $y(x+7) - (x+7)$ 10. _____

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11. $6x^2(2x-7) + (2x-7)$

11. _____

Factor by grouping.

12. $x^4 - 3x^3 - 4x^2 + 12x$

12. _____

13. $ab - 4b^2 + 6a - 24b$

13. _____

14. $10xy + 16y - 5x - 8$

14. _____

15. $6mn + 2n - 27m - 9$

15. _____

16. $9x^3 - 6x^2 + 15x - 10$

16. _____

17. $20x^4 - 25x^3 + 12x^2 - 15x$

17. _____

18. $12a^3 - 16a^2 - 9a + 12$

18. _____

Solve.

19. The area of a rectangle is $2x^2 + 6xy + 4xy + 12y^2$. The width of the rectangle is $x + 3y$. Write a polynomial for the length of the rectangle.

19. _____

20. The width of a rectangle is $2x + y$. The length of the rectangle is $2x^2 - 5$. Write a polynomial for the area of the rectangle.

20. _____