NAME Master E

FACTORING POLYNOMIALS WORKSHEET

Factor out the GCF from each polynomial.

1. $-16x^4 - 32x^3 - 80x^2$ $-16x^2(x^2+2x+5)$
2. $14x^5 - 24x^4$ $2x^4(7x-12)$
3. $x^3 + 3x$ $x(x^2+3)$
4. $-43x^2 + 387x$ $43x(-x+9)$ or $-43x(x-9)$
5. $-6x^5 + 3x^3$ $3x^3(-2x^2+1)$ or $-3x^3(2x^2-1)$
6. $96x^3 - 48x^2 + 60x$ $12x(8x^2-4x+5)$
7. $33x^2 + 363x$ $33x(x+11)$
8. $-3x^6 + 15x^4$ $-3x^4(x^2-5)$ or $3x^4(-x^2+5)$

Factor Completely.

9. $x^2 - 3x - 88$ $(x-11)(x+3)$
10. $x^2 - 16x + 48$ $(x-12)(x-4)$
11. $x^2 + 11x + 30$ $(x+5)(x+6)$ 10·3, 5·6
12. $x^2 - 14x + 33$ $(x-3)(x-11)$ 3·11
13. $x^2 + x - 30$ $(x+6)(x-5)$
14. $x^2 - 3x - 70$ $(x-10)(x+7)$ 7·10

15. $x^2 + 8x - 9$ $(x+9)(x-1)$

16. $x^2 - 16x + 55$ $5 \cdot 11$ $(x-11)(x-5)$

Factor each trinomial.

17. $3x^2 - 20x + 28$ $84 \mid -20$, $-6 \cdot -14$ $(3x-14)(x-2)$ $(x-\frac{6}{3})(x-\frac{14}{3})$

18. $15y^4 + 26y^3 + 7y^2$ $y^2(15y^2+26y+7)$ $(y+\frac{5}{15})(y+\frac{21}{15})$
$105 \mid 26$, $5 \cdot 21$ $y^2(3y+1)(5y+7)$ $y^2(3y+1)(5y+7)$

19. $6x^2 + 17x + 12$. $72 \mid 17$, $9 \cdot 8$ $(x+\frac{9}{6})(x+\frac{8}{6})$ $(2x+3)(3x+4)$

20. $6y^2 + 7y - 24$ $-144 \mid 7$, $-12 \cdot 12$, $-6 \cdot 24$, $-9 \cdot 16$ $(x-\frac{9}{6})(x+\frac{16}{6})$ $(2x-3)(3x+8)$

21. $24x^4 + 10x^3 - 4x^2$ $2x^2(12x^2+5x-2)$ $-24 \mid 5$, $12 \cdot -2$, $8 \cdot -3$ $(x+\frac{8}{12})(x-\frac{3}{12})$ $2x^2(3x+2)(4x-1)$

22. $16r^2 - 16r - 12$ $4(4r^2-4r-3)$ $-12 \mid -4$, $-6 \cdot 2$ $(x-\frac{6}{4})(x+\frac{2}{4})$ $4(2x-3)(2x+1)$

23. $4x^2 - 20x + 25$ $2x$ 5 $(2x-5)^2$

24. $4x^2 + 7x + 3$ $12 \mid 7$, $2 \cdot 6$, $4 \cdot 3$ $(x+\frac{4}{4})(x+\frac{3}{4})$ $(x+1)(4x+3)$