

NAME _____

DATE _____

FACTORING PART 1: Worksheet 1

Write the prime factorization of each.

1) 75

2) 81

3) 68

Factor each polynomial completely using the greatest common factor (GCF).

4) $5a^2 - 15$

5) $8tx - 56t$

6) $a^2h + 3a$

7) $6t^2 + 9t + 12$

8) $x + x^2y + x^3y^2$

9) $4a^2d^2 + 16ad + 12a$

Factor each polynomial (the riddle game).

10) $q^2 + 9q + 20$

11) $n^2 + 3n - 18$

12) $b^2 - 5b - 6$

13) $w^2 - w - 6$

Factor each polynomial using the difference of two squares. If it cannot be factored, write *prime*.

14) $a^2 - 4$

15) $1 - 49f^2$

16) $j^2 + 25$

17) $t^2 - 81r^2$

18) $64n^2 - 9y^2$

19) $20q^2 - 9r^2$

Factor completely.

20) $4t^2 - 36$

21) $3x^2 + 24x + 45$

22) $4y^2 - 20y + 24$

23) $6w^2 - 6$

24) $5w^2 + 20w - 60$

25) $3y^2 - 6y - 24$

KEY

FACTORING PART 1: Worksheet 1

Write the prime factorization of each.

1) 75
 $3 \cdot 5^2$

2) 81
 3^4

3) 68
 $2^2 \cdot 17$

Factor each polynomial completely using the greatest common factor (GCF).

4) $5a^2 - 15$
 $5(a^2 - 3)$

5) $8tx - 56t$
 $8t(x - 7)$

6) $a^2h + 3a$
 $a(ah + 3)$

7) $6t^2 + 9t + 12$
 $3(2t^2 + 3t + 4)$

8) $x + x^2y + x^3y^2$
 $x(1 + xy + x^2y^2)$

9) $4a^2d^2 + 16ad + 12a$
 $4a(ad^2 + 4d + 3)$

Factor each polynomial (the riddle game).

10) $q^2 + 9q + 20$
 $(q + 4)(q + 5)$

11) $n^2 + 3n - 18$
 $(n + 6)(n - 3)$

12) $b^2 - 5b - 6$
 $(b - 6)(b + 1)$

13) $w^2 - w - 6$
 $(w - 3)(w + 2)$

Factor each polynomial using the difference of two squares. If it cannot be factored, write *prime*.

14) $a^2 - 4$
 $(a + 2)(a - 2)$

15) $1 - 49f^2$
 $(1 + 7f)(1 - 7f)$

16) $j^2 + 25$
prime

17) $t^2 - 81r^2$
 $(t + 9r)(t - 9r)$

18) $64n^2 - 9y^2$
 $(8n + 3y)(8n - 3y)$

19) $20q^2 - 9r^2$
prime

Factor completely.

20) $4t^2 - 36$
 $4(t + 3)(t - 3)$

21) $3x^2 + 24x + 45$
 $3(x + 3)(x + 5)$

22) $4y^2 - 20y + 24$
 $4(y - 2)(y - 3)$

23) $6w^2 - 6$
 $6(w + 1)(w - 1)$

24) $5w^2 + 20w - 60$
 $5(w + 6)(w - 2)$

25) $3y^2 - 6y - 24$
 $3(y - 4)(y + 2)$