20. Use the polynomial form of $(x-y)^3$ to show that the value of the cube of 1.99 is 7.88 to the nearest hundredth. $(1.99 = 2 - .01)$

21. Show that $3.01^3 = 27.27$ to the nearest hundredth.

22. Show that $2.98^3 = 26.46$ to the nearest hundredth.

23. Simplify: $(x+h)^3 - (x-h)^3$. 24. Simplify: $(x+h)^3 + (x-h)^3$.

25. Two cubes have edges of lengths $(n+1)$ inches and n inches respec- the

19. (a) Show that if $x^6 - 1$ is factored as the difference of two cubes, the factored form is $(x+1)(x-1)(x^4+x^2+1)$.
(b) Show that if $x^6 - 1$ is factored as the difference of two squares, the factored form is $(x+1)(x-1)(x^2+x+1)(x^2-x+1)$.
(c) Factor x^4+x^2+1 by writing it in the form $x^4+2x^2+1-x^2$, and so demonstrate that the factored forms in (a) and (b) are equivalent.

20. Factor $4x^4+1$, by writing it as $4x^4+4x^2+1-4x^2$, and noting that this is the difference of two squares.

21. Factor a^4+4b^4 by expressing it as the difference of two squares.

22. Factor: $x^4+x^2y^2+y^4$. 24. Factor: $4t^4+11t^2u^2+9u^4$.

23. Factor: $x^4-12x^2y^2+16y^4$. 25. Factor: $4a^4+625b^4$.

26. Show that the value of $(x^4+x^2+1) \div (x^3+1)$ when $x = 1.5$ is 1.9. es of
m and n, $c^- - v^- = a^-$.

13. Show that the factored form of $(a^2-3a+1)^2-1$ is
$$a(a-1)(a-2)(a-3).$$

14. Factor: $4b^2c^2-(b^2+c^2-a^2)^2$.

15. Factor: $n(n-1)(n+1)-2(n+1)$.

16. Show that $(a+b)^2+(b+c)^2+(c+a)^2 = (a+b+c)^2+a^2+b^2+c^2$. Use the result to express $4^2+9^2+7^2$ as the sum of the squares of four integers.

17. Verify that $12^2-2(11)^2+10^2 = 2$, and that $21^2-2(20)^2+19^2 = 2$. If n is the smallest of three consecutive integers, express in terms of n the relationship of which the above are specific instances. Show that the relationship is true for all values of n.

18. If a and b represent any unequal numbers in our present field of operation (positive and negative integers and fractions), is it possible for $(a-b)^2$ to have zero or negative value?
What may be deduced about the relative values of a^2+b^2 and $2ab$? Use the result to show that if a, b, c are unequal then the value of $a^2+b^2+c^2$ exceeds the value of $ab+bc+ac$.

19. (a) Show that if $x^6 - 1$ is factored as the difference of two cubes, the factored form is $(x+1)(x-1)(x^4+x^2+1)$.

(b) Show that if $x^6 - 1$ is factored as the difference of two squares, the factored form is $(x+1)(x-1)(x^2+x+1)(x^2-x+1)$.

(c) Factor x^4+x^2+1 by writing it in the form $x^4+2x^2+1-x^2$, and so demonstrate that the factored forms in (a) and (b) are equivalent.

20. Factor $4x^4+1$, by writing it as $4x^4+4x^2+1-4x^2$, and noting that this is the difference of two squares.

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22. Factor: $x^4+x^2y^2+y^4$.

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25. Factor: $4a^4+625b^4$.

26. Show that the value of $(x^4+x^2+1) \div (x^3+1)$ when $x = 1.5$ is 1.9.

Pages 69-70

1. (m - n)(m + n + 1)
2. (r + q)(2p + r - q)
3. n(n + 1)(n - 1)
4. (x + y)(x - y)^2
5. (a - b)(a + b)^2
6. (x + 2y)(a - 3x + 6y)
7. (2x + 3y)(1 + 10x + 15y)
8. (x + 2)(x - 1)(x - 4)
9. (x - 1)^3
10. (a - b)(a - b - 3)

14. (b + c + a)(b + c - a)(a + b - c)(a - b + c)
15. (n + 1)^2(n - 2)
16. $10^2 + 1^2 + 3^2 + 6^2$
17. (n + 2)^2 - 2(n + 1)^2 + n^2 = 2
18. No; $a^2 + b^2 > 2ab$
19. c. $(x^2 + x + 1)(x^2 - x + 1)$
20. $(2x^2 + 2x + 1)(2x^2 - 2x + 1)$
21. $(a^2 + 2ab + 2b^2)(a^2 - 2ab + 2b^2)$
22. $(x^2 + xy + y^2)(x^2 - xy + y^2)$
23. $(x^2 + 2xy - 4y^2)(x^2 - 2xy - 4y^2)$
24. $(2t^2 + tu + 3u^2)(2t^2 - tu + 3u^2)$
25. $(2a^2 + 10ab + 25b^2)(2a^2 - 10ab + 25b^2)$

3. $8a^3 + 36a^2b + 54ab^2 + 27b^3$
4. $x^3 + 3x^2 + 3x + 1$
5. $x^3 - 9x^2 + 27x - 27$
6. $8x^3 + 12x^2 + 6x + 1$
7. $x^3 + 0.3x^2 + 0.03x + 0.001$
8. $8x^3 - 60x^2 + 150x - 125$
9. $27x^3 - 54x^2y + 36xy^2 - 8y^3$
10. $(a + 2b)(a^2 - 2ab + 4b^2)$
11. $(x - 1)(x^2 + x + 1)$
12. $(1 + x)(1 - x + x^2)$
13. $2(x - 2y)(x^2 + 2xy + 4y^2)$
14. $(3 - ab)(9 + 3ab + a^2b^2)$
15. $(2 + x)(4 - 2x + x^2)$
16. $(2t + 3u)(4t^2 - 6tu + 9u^2)$
17. $xy(1 - x)(1 + x + x^2)$
18. $y^3(x - 2)(x^2 + 2x + 4)$
23. $6x^2h + 2h^3$
24. $2x^3 + 6xh^2$
25. $3n^2 + 3n + 1$

Page 70

1. $3x(x - 9)$
2. $3x(x + 2)^2$
3. $(2a + 3b)(2a - 3b)$
4. $(4a + 3b)(a - 3b)$
5. $(x - 1)(x^2 + x + 1)$
6. $x(x + 1)(x - 1)$
7. $4(t + 5)(t - 5)$
8. $(t + 2)(3a - 2)$
9. $(2 - 5n)^2$
10. $(4 + 5n)(1 - 5n)$
11. $9(3 + 2y)^2$
12. $(p - q + 2r)(p - q - 2r)$
13. $(a - b + 2c)(a - b - 2c)$
14. $(x - 3)(x - y)$
15. $(x + y + 2)(x - y - 2)$
16. $(x - a)(a - x)$

17. $(x^2 - 3)(3x + 2$
18. $(x + 3)(y + 3)$
19. $(3a - x)(2 + x)$
20. $(3x + 4)(x + 1)$
21. $(a + 33)(a - 31$
22. $(a - b)(a - b +$
23. $3(2x^2 + 1)(x^2 -$

1. {2, 7, 12, 1
2. 2, mod 3
3. $x = 4$
4. 12; 7 o'clo

1. $\frac{2}{3}$
2. $\frac{x}{y}$
3. $\frac{1 - 2x}{2}$
4. $\frac{b + c}{b}$

13. $15x$; $x \neq 0$
14. $3x - 3$; $x \neq 2$
15. $(x - 1)(x - 2)$;

1. $\{x|x < 10\}$.
2. $\{x|0 < x < 10$
3. $\frac{10}{n}$
4. $\frac{120}{n - 5}$
5. (b)
6. (a)
7. (c)
8. (b)
9. (c)
10. (a)
11. (b)