[07-05-21-P1-8-D]

It will be seen from the exercises just completed that

▶ **An expression of the form $x^2 + kx$ may be changed to a perfect square by adding the square of one half of k, the coefficient of x.**

Exercises [A]

Copy and fill in the blanks.

1. $a^2 + 2a + \ ? \ = (\ \ ?\ \ )^2$
2. $b^2 - 2b + \ ? \ = (\ \ ?\ \ )^2$
3. $c^2 + \ \ c + \ ? \ = (\ \ ?\ \ )^2$
4. $d^2 - \ \ d + \ ? \ = (\ \ ?\ \ )^2$
5. $m^2 + 3m + \ ? \ = (\ \ ?\ \ )^2$
6. $n^2 - 3n + \ ? \ = (\ \ ?\ \ )^2$
7. $p^2 + \frac{2}{3}p + \ ? \ = (\ \ ?\ \ )^2$
8. $x^2 - 7x + \ ? \ = (\ \ ?\ \ )^2$
9. $y^2 + \frac{3}{4}y + \ ? \ = (\ \ ?\ \ )^2$
10. $w^2 - \frac{1}{2}w + \ ? \ = (\ \ ?\ \ )^2$

Solve, leaving irrational answers in simplest radical form:

11. $x^2 - 5 = 0$
12. $x^2 - 5x = 0$
13. $x^2 - 5x - 6 = 0$
14. $(x - \frac{5}{2})^2 = 16$
15. $(x - \frac{5}{2})^2 = 17$
16. $(x - 2)^2 + (x - 3)^2 = 13$
17. $r^2 = 4r$
18. $r^2 = 4$
19. $\dfrac{x-9}{3} = \dfrac{4}{x-9}$
20. $\dfrac{12}{x(x-9)} = 1 - \dfrac{9}{x}$
21. $(a-3)(a-1) + 1 = 2a - 1$
22. $(a-3)(a-1) = 2a - 1$

Page 465

1. 1; $a + 1$
2. 1; $b - 1$
3. $\frac{1}{4}$; $c + \frac{1}{2}$
4. $\frac{1}{4}$; $d - \frac{1}{2}$
5. $\frac{9}{4}$; $m + \frac{3}{2}$
6. $\frac{9}{4}$; $n - \frac{3}{2}$
7. $\frac{1}{9}$; $p + \frac{1}{3}$
8. $\frac{49}{4}$; $x - \frac{7}{2}$
9. $\frac{9}{64}$; $y + \frac{3}{8}$
10. $\frac{1}{16}$; $w - \frac{1}{4}$
11. $+\sqrt{5}, -\sqrt{5}$
12. 0, 5
13. -1, 6
14. $-1\frac{1}{2}, 6\frac{1}{2}$
15. $\frac{5}{2} \pm \sqrt{17}$
16. 0, 5
17. 0, 4
18. ± 2
19. $9 \pm 2\sqrt{3}$
20. $9 \pm 2\sqrt{3}$
21. 1, 5
22. $3 \pm \sqrt{5}$