

ANSWERS

EXERCISES : PAGE 5

1. (1) $x(x+1)-x^2=13$; (2) $3x+15=2(x+15)$; (3) $2(100-x \times 100+10)=100-x \times 100+11$. 2. (1) A property of every three consecutive integers; (2) A property for every division of the line.

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1. (1) 11; (2) 12; (3) pqr ; (4) abc . 2. 15 ft., 27 ft.

EXERCISES : PAGE 9

1. 0, $x=0$; -1, $x=0$; $5\frac{1}{2}$, $x=\frac{1}{2}$; 2, $x=1$. 2. $-5\frac{1}{2}$, $x=\frac{1}{2}$; 0, $x=0$; 1, $x=0$; 4, $x=1$. 3. $-6\frac{1}{2}$, $x=\frac{1}{2}$, min.; $4\frac{1}{2}$, $x=\frac{1}{2}$, min.; $7\frac{1}{2}$, $x=1\frac{1}{2}$, max.

EXERCISES : PAGE 16

1. $\{x+(7+\sqrt{69})+2\}\{x+(7-\sqrt{69})+2\}$; $(x-1)(2x-5)$; $\{2x+(\sqrt{73}+5)+4\}\{(\sqrt{73}-5)+4-2x\}$; $7\{x-(11+\sqrt{-19})+14\}\{x-(11-\sqrt{-19})+14\}$. 2. $(7\pm\sqrt{37})+2$; $(2\pm\sqrt{19})+3$; $(-3\pm\sqrt{149})+10$; $(11\pm\sqrt{131})+6$. 3. Real and positive; real, one positive and one negative, the former the greater numerically; real and negative; real and positive. 4. $x^2-9x+11=0$. 5. $ax^2+(b-2ah)x+c-bh+ah^2=0$. 6. $x^2-10x+12=0$. 7. $x^2+mx+n^2q=0$. 8. (1) $4x^2-37x+9=0$; (2) $3x^2-7x+2=0$; (3) $8x^2-42x+27=0$. 9. (1) $a^2x^2-(b^2-2ac)x+c^2=0$; (2) $ax^2+bx+a=0$; (3) $c^2x^2-(b^2-2ac)x+a^2=0$; (4) $a^2x^2+b(b^2-3ac)x+c^2=0$; (5) $a^2x^2+abcx+c^2=0$; (6) $ac^2-(b^2-4ac)x+1=0$. 10. $(q-s)^2=(p-r)(rq-ps)$. 11. $a+p=b+q=c+r$. 12. Zero for $x=4$ or -3 ; negative for x between 4 and -3 ; positive for other values. 13. Always positive. 14. $a(\sqrt{5}-1)+2$ and $a(3-\sqrt{5})+2$; $a(3+\sqrt{5})+2$ and $a(-1-\sqrt{5})+2$.

EXERCISES : PAGE 21

1. $\pm\sqrt{6}+2$, $\pm\sqrt{35}+5$. 2. $\frac{1}{2}$, $\frac{1}{2}$, $(-1\pm\sqrt{-3})+2$. 3. 4, -13, $(9\pm\sqrt{-31})+2$. 4. 5, $-\frac{1}{2}$, $\{(5\pm\sqrt{137})+4\}$. 5. 2, 2, $(9\pm\sqrt{337})+8$. 6. $\frac{1}{2}$, $\frac{1}{2}$, $(-3\pm\sqrt{-7})+4$. 7. 1, -1, $+\sqrt{-1}$, $-\sqrt{-1}$. 8. 3, -10, $(-7\pm3\sqrt{-11})+2$. 9. 7, -23. 10. 7, -13, $\{-3\pm\sqrt{79}\}$.