

15 C    16 A

$$K = 2x^3 - 7x^2 - 11x + 6 = (2x+3)(x^2 - 5x + 2)$$

$$h = 2x + 2$$

$$h(K) = 4x^3 - 14x^2 - 22x + 12 + 2 = 2(2x^3 - 7x^2 - 11x + 7)$$

$$\frac{1}{2} \cdot h(K) = (2x-1)(x^2 - 3x - 7)$$

RATIONAL ROOT OF K IS  $-\frac{3}{2}$ , IRR. ROOTS OF K ARE  $\frac{5 \pm \sqrt{17}}{2}$

RATIONAL ROOT OF  $h(K)$  IS  $\frac{1}{2}$ , IRR. ROOTS OF  $h(K)$  ARE  $\frac{3 \pm \sqrt{37}}{2}$

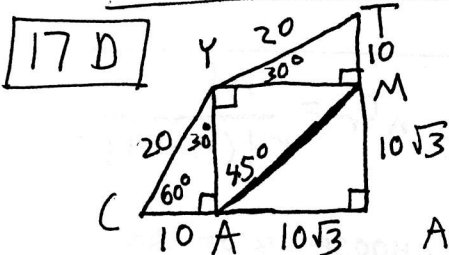
IF 5 IS A ROOT OF  $K(h)$  THEN  $K(2s+2) = 0$  so  $2s+2 = r$   
WHERE  $r$  IS A ROOT OF  $K$  SO

RATIONAL ROOT OF  $K(h)$  IS  $-\frac{7}{4}$

IRR. ROOTS OF  $K(h)$  ARE  $\frac{1 \pm \sqrt{17}}{4}$        $\swarrow$   $\pm \sqrt{17}$  PARTS CANCEL

#15 SUM OF IRR. ROOTS OF  $h(K)$  AND  $K(h) = \frac{3}{2} + \frac{3}{2} + \frac{1}{4} + \frac{1}{4} = \frac{7}{2}$   
ANS C

#16 SUM OF RAT. ROOTS  $\frac{1}{2} - \frac{7}{4} = -\frac{5}{4}$  ANS. A



$\Delta ACY$  IS  $30-60-90$  WITH AREA  $50\sqrt{3}$

$\Delta MTY \cong \Delta ACY$  SAME AREA

$\Delta AMY$  IS  $45-45-90$  WITH AREA  $\frac{1}{2}(10\sqrt{3})^2 = 150$

AREA ~~OF~~ PENTAGON AMTYC IS

$$\text{AREA } \Delta ACY + \text{AREA } \Delta AMY + \text{AREA } \Delta MTY = 2 * (50\sqrt{3}) + 150$$

$$\cong 323.2 \text{ ANS D}$$

18 B

4 DIGIT NUMBER  $abcd$ , WITH  $a, b, c, d$  ALL ODD

DIVISIBILITY RULE FOR 11, ALTERNATING SUM OF DIGITS IS A MULTIPLE OF 11, FOR ANY 4 DIGIT NUMBER  $a-b+c-d$

COULD BE  $-11, 0$  OR  $11$ , BUT TO GET  $-11$  OR  $11$  AT LEAST ONE DIGIT MUST BE EVEN SO  $a-b+c-d=0$  OR  $a+c=b+d$

CONTINUED ON PAGE 6