Q1

Let the lengths of the sides of a triangle be repre-
sented by $x + 3$, $2x - 3$, and $3x - 5$. If the
perimeter of the triangle is 25, what is the length
of the shortest side?

(A) 5
(B) 7
(C) 8
(D) 10
(E) It cannot be determined from the information
given.

Q2

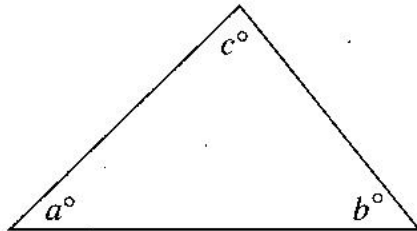$(x + 5)°$
k
$y°$
$(3x + 15)°$
$(2x + 30)°$
ℓ
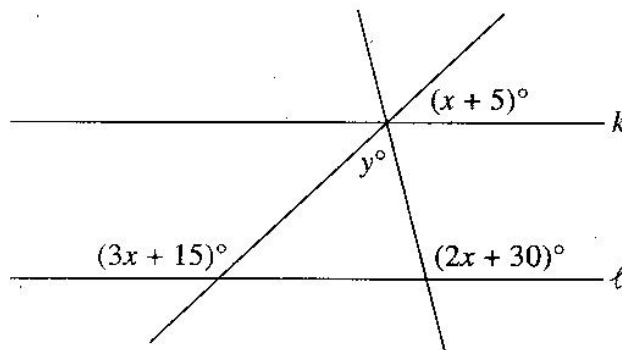
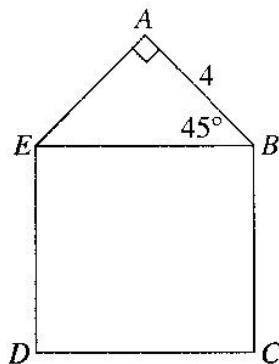In the figure above, if $k \parallel \ell$, what is the value of y?
(A) 40
(B) 45
(C) 50
(D) 60
(E) 65

Q3

If $a:b:c = 6:7:11$, what is the value of $c - a$?

Q4

In the figure above, what is the perimeter of penta-
gon *ABCDE*, formed by right triangle *EAB* and
square *BCDE*?

(A) 20

(B) $8 + 12\sqrt{2}$

(C) $8 + 16\sqrt{2}$

(D) $8 + 12\sqrt{3}$

(E) 32

Q5   The graphs of the equations $2x - 3y = 5$ and $4x - 6y = 7$
A)   form an acute angle
B)   intersect in two points
C)   are parallel lines
D)   are coincident
E)   are perpendicular lines.

Q6   Area of a kitchen is 200 sq. yards. Area of the leaving room is B sq. feet greater than the area of the kitchen. Total area of kitchen and living room together is X% more than the kitchen area. Find the value of X.

Q7   Describe the locus of points equidistant from P(6, -6) and Q(6, 10) ?

Q8   Leona drives from her home to the store at a speed 30 mph. If she makes the return trip home at a speed of 40 mph, what is the average speed of the round trip?

Simplify by combining fractions

R1 $\qquad \sqrt{5} / (\sqrt{7} + \sqrt{5}) - \sqrt{7} / (\sqrt{7} - \sqrt{5}) =$

P1 If the equation $9 * x^2 - 4 * K * x + 4 = 0$ has two equal roots, then K is equal to

A) $\qquad$ +- 1
B) $\qquad$ 2
C) $\qquad$ +-3
D) $\qquad$ +-4

P2 Solve equation
$\sqrt{(x^2 - 1)} - 6 / \sqrt{(x^2 - 1)} = 1 \qquad$ Introduce new variable, and reduce to quadratic equation

P3 Find ratio of "a" over "b", if:
$$21a^2 - 4ab - b^2 = 0;$$

I1   Solve inequality $(2 * x - 1) / (3 - x) < 3$

I2   Solve inequality $\sqrt{(x^2 - 36)} < x + 5$

I2   Solve inequality $\sqrt{(x^2 + 2*x)} < x + 1$

S1   Solve a system of inequalities
        $3*x - 1 < 0$ AND $(2*x - 1)*(6 - 18*x) > 0$