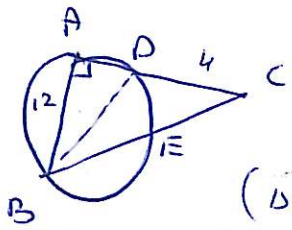
34.



(נתון) $\angle A = 90^\circ$

$\Downarrow$

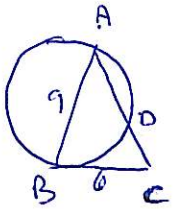
(קוטר) $BD = 2 \cdot 6.5 = 13$

($\triangle ABD$ פיתגורס) $AD^2 = BD^2 - AB^2 = 13^2 - 12^2 \Rightarrow AD = 5$

($\triangle ABC$ פיתגורס) $BC^2 = AB^2 + AC^2 = 12^2 + 9^2 \Rightarrow BC = 15$

$DC \cdot AC = EC \cdot BC \Rightarrow 4 \cdot 9 = EC \cdot 15 \Rightarrow EC = 2.4$

37.



א. נסמן $AD = x$, $DC = 9 - x$

(משפט המשיק) $BC^2 = AD \cdot DC$

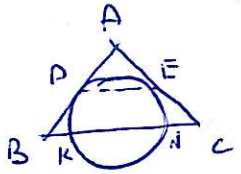
$6^2 = x \cdot 9$

$x = AD = 4$, $DC = 5$

ב. $DC = AC - AD = 10 - 7.5 = 2.5$ $\Leftarrow$

$BC^2 = AC \cdot DC = 10 \cdot 2.5 = 25 \Rightarrow BC = 5$

40.



(נתון) $AB = AC$, (משיקים מנקודה חוץ שווים זה לזה) $AD = AE$

$\Downarrow$

$AB - AD = AC - AE$

$BD = EC$

נסמן $NC = x$, $BK = y$

(משפט המשיק) $BD^2 = BK \cdot BN$, $EC^2 = NC \cdot KC$

$\Rightarrow BK \cdot BN = NC \cdot KC$

$y(9+y) = x(9+x)$

$\Downarrow$

$x = y$

$BC = 15 = BK + KN + NC = 2x + 9 \Rightarrow x = y = NC = BK = 3$

$BD^2 = BK \cdot BN = 3 \cdot 12 \Rightarrow BD = 6 \Rightarrow AD = AB - BD = 9 - 6 = 3$

$\frac{DE}{BC} = \frac{AD}{AB}$ $\Leftarrow$ (משפט) $DE \parallel BC$ $\Leftarrow$ $\frac{AD}{AB} = \frac{AE}{AC}$

$\frac{DE}{15} = \frac{3}{9} \Rightarrow DE = 5$

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