

Extra questions on HF methods

1. In a transition region of a half-plane illuminated by a plane wave, the diffracted field exhibits a transition from

$1/\sqrt{\rho}$ to 1
 $1/\sqrt{\rho}$ to $1/\rho$
 1 to $1/\rho$

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2. Which is the canonical local problem associated to diffraction at a truncated large cylinder

A sphere
 An infinite cylinder
 A right angled wedge
 Both an infinite cylinder and a right angled wedge

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3. Which is the canonical function associated to two adjacent saddle points

Airy function
 Cylinder parabolic function
 Fresnel function
 Generalized Fresnel Integral

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4. Which is the canonical function associated to three collinear equidistant saddle points

Airy function
 Cylinder parabolic function
 Fresnel function
 Generalized Fresnel Integral

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5. Which is the canonical function associated to vertex diffraction problems

Airy function
 Cylinder parabolic function
 Fresnel function
 Generalized Fresnel Integral

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6. An integral with kernel containing a branch point of type $\sqrt{s_0 - s}$ near a saddle point can be transformed in an integral containing two adjacent saddle points

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True

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False

7. An integral with kernel containing a branch point of type $1/\sqrt{s_0 - s}$ near a saddle point can be transformed in an integral containing three collinear saddle points

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True

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False

8. An integral with a pole near a saddle point and a zero at a saddle point can be described in terms of

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Airy function

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Cylinder parabolic function

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Fresnel function

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Slope Fresnel Function

9. An integral with a second-order pole near a saddle point can be described in terms of

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Airy function

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Cylinder parabolic function

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Fresnel function

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Slope Fresnel Function

10. Which is the most suitable method to treat a complex pole near a real saddle point?

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Pauli-Clemmow method

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Van der Waerden method