

## 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