## Verschuivingen, spiegelingen en rotaties

### Spiegelingen

$$S\_{g}\left(A\right)=Spiegeling van S ten opzichte van g $$

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| --- | --- | --- | --- | --- |
| $S\_{k }(Q)$= | $S\_{g }(I)$= | $$S\_{k }\left(K\right)=$$ | $$S\_{h }\left(D\right)=$$ | $$S\_{m }\left(F\right)=$$ |
| $$S\_{k }\left([IJ]\right)=$$ | $$S\_{n }\left([AR]\right)=$$ | $$S\_{h }\left([QJ]\right)=$$ | $$S\_{k }\left([BL]\right)=$$ | $$S\_{k }\left(∆BTL]\right)=$$ |

### Verschuivingen

$$t\_{→(S)=}verschuiving van S volgens richting BD$$

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| --- | --- | --- | --- | --- |
| $$t\_{→(T)=}$$ | $$t\_{→(G)=}$$ | $$t\_{→(I)=}$$ | $$t\_{→(T)=}$$ | $$t\_{→(J)=}$$ |
| $$t\_{→([KQ])=}$$ | $$t\_{→([IQ])=}$$ | $$t\_{→([SF])=}$$ | $$t\_{→([KI])=}$$ | $$t\_{→(∆BKS])=}$$ |

### Rotaties

$$r\_{\left(m,α\right)}\left(A\right)=Rotatie van A rond m over hoek α $$

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| $$r\_{\left(0,45°\right)}\left(C\right)=$$ | $$r\_{\left(0,-60°\right)}\left(I\right)=$$ | $$r\_{\left(0,30°\right)}\left(P\right)=$$ | $$r\_{\left(0,90°\right)}\left(H\right)=$$ | $$r\_{\left(0,-45°\right)}\left(0\right)=$$ |
| $$r\_{\left(0,120°\right)}\left(H\right)=$$ | $$r\_{\left(0,180°\right)}\left(G\right)=$$ | $$r\_{\left(0,-90°\right)}\left(Q\right)=$$ | $$r\_{\left(0,-15°\right)}\left(D\right)=$$ | $$r\_{\left(0,-30°\right)}\left(P\right)=$$ |

## Transformaties van het vlak

### spiegeling ten opzichte van x -as

$$s\_{x} \left( a,b\right)=(a,-b)$$

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| --- | --- |
| $$s\_{x}\left( 2 , 6 \right)=$$ | $$s\_{x}\left( -2 , -1 \right)=$$ |
| $$s\_{x}\left( -1 , 5 \right)=$$ | $$s\_{x}\left( 0 , 3 \right)=$$ |

### spiegeling ten opzichte van y -as

$$s\_{y} \left( a,b\right)=(-a,b)$$

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| Video op Youtube | Interactieve Oefening |

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| $$s\_{y}\left( 2 , 3 \right)=$$ | $$s\_{y}\left( -2 , -1 \right)=$$ |
| $$s\_{y}\left( -1 , 5 \right)=$$ | $$s\_{y}\left( 0 , -3 \right)=$$ |

### spiegeling ten opzichte van de oorsprong

$$s\_{o} \left( a,b\right)=(-a,-b)$$

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| Video op Youtube | Interactieve Oefening |

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| $$s\_{o}\left( 2 , 3 \right)=$$ | $$s\_{o}\left( -2 , 1 \right)=$$ |
| $$s\_{o}\left( -1 , -5 \right)=$$ | $$s\_{o}\left( 0 , -3 \right)=$$ |

### Rotatie over +90 graden rond oorsprong

$$s\_{+90°} \left( a,b\right)=(-b,a)$$

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| Video op Youtube | Interactieve Oefening |

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| --- | --- |
| $$s\_{+90°}\left( 2 , 3 \right)=$$ | $$s\_{+90°}\left( -2 , 1 \right)=$$ |
| $$s\_{+90°}\left( -1 , -5 \right)=$$ | $$s\_{+90°}\left( 0 , -3 \right)=$$ |

### Rotatie over -90 graden rond oorsprong

$$s\_{-90°} \left( a,b\right)=(b,-a)$$

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| --- | --- |
| Video op Youtube | Interactieve Oefening |

|  |  |
| --- | --- |
| $$s\_{-90°}\left( 2 , -3 \right)=$$ | $$s\_{-90°}\left( -2 , -1 \right)=$$ |
| $$s\_{-90°}\left( -1 , -5 \right)=$$ | $$s\_{-90°}\left( 0 , -3 \right)=$$ |

### spiegeling ten opzichte van 1ste bissectrice

$$s\_{a} \left( a,b\right)=(b,a)$$

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| Video op Youtube | Interactieve Oefening |

|  |  |
| --- | --- |
| $$s\_{a}\left( 2 , 3 \right)=$$ | $$s\_{a}\left( -2 , 1 \right)=$$ |
| $$s\_{a}\left( 1 , -5 \right)=$$ | $$s\_{a}\left( 0 , -3 \right)=$$ |

### spiegeling ten opzichte van 2de bissectrice

$$s\_{b} \left( a,b\right)=(-b,-a)$$

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| Video op Youtube | Interactieve Oefening |

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| --- | --- |
| $$s\_{b}\left(-2 , 3 \right)=$$ | $$s\_{b}\left( -2 , -1 \right)=$$ |
| $$s\_{b}\left( -1 , -5 \right)=$$ | $$s\_{b}\left( 0 , -3 \right)=$$ |