All quantities appearing in parentheses are real numbers.

1. Find expressions for $a$ and $b$ in terms of $A$ and $B$:

$$ A \sin(\theta+B) = a \cos(\theta+b) . $$

2. Find expressions for $a$ and $b$ in terms of $A$ and $B$:

$$ A \cos(\theta+B) = a \sin(\theta) + b \cos(\theta) . $$

3. Find expressions for $a$, $b$, $c$, and $d$ in terms of $A$ and $B$:

$$ A \sin(\theta) + B \cos(\theta) = a \sin(\theta+b) = c \cos(\theta+d) . $$

4. Find expressions for $a$ and $b$ in terms of $A$, $B$, $C$, and $D$:

$$ A \sin(\theta+B) + C \sin(\theta+D) = a \sin(\theta+b) . $$

5. Find expressions for $a$ and $b$ in terms of $A$, $B$, $C$, and $D$:

$$ A \cos(\theta+B) + C \cos(\theta+D) = a \cos(\theta+b) . $$

6. Find expressions for $a$ and $b$ in terms of $A$ and $B$:

$$ A \sin(\theta+B) = a \sin(\theta) + b \cos(\theta) . $$

7. Find an expression for $a$ in terms of $A$ and $B$:

$$ A \exp i(\theta+B) = a \exp i(\theta) . $$

8. Find expressions for $a$ and $b$ in terms of $A$ and $B$:

$$ A \exp i(\theta) + B \exp -i(\theta) = a \sin(\theta) + b \cos(\theta) . $$

9. Find expressions for $a$ and $b$ in terms of $A$ and $B$:

$$ A \sin(\theta) + B \cos(\theta) = a \exp i(\theta) + b \exp -i(\theta) . $$

10. Find expressions for $a$ and $b$ in terms of $A$ and $B$:

$$ A \sin(\theta) + B \cos(\theta) = a \exp i(\theta) + b \exp -i(\theta) . $$

11. Find expressions for $a$ and $b$ in terms of $A$ and $B$:

$$ A \cos(\theta+B) = a \exp i(\theta) + b \exp -i(\theta) . $$