

```
<?php
```

```
// test
```

```
$tail_fuel = 0;
```

```
$zfw = 27500;
```

```
$ramp_wt = 45250;
```

```
$togw = 45000;
```

```
$ldgwt = 35000;
```

```
?>
```

```
<?php
```

```
// Compute the CG for Zero Fuel Wt., Ramp Wt, Takeoff Wt, and Landing Wt.
```

```
// Forward CG Limits
```

```
// Compute Forward CG Limits for ZFW
```

```
if ($zfw <= 33400 && $tail_fuel > 0) {  
    $zfw_fwd_cg_lmt = number_format(24,1);
```

```
} elseif ($zfw > 33401 && $zfw <= 39500 && $tail_fuel > 0) {  
    $zfw_fwd_cg_lmt = number_format((39500 - $zfw) * 0.0013114 + 16,1);
```

```
} elseif ($zfw <= 36500 && $tail_fuel == 0) {  
    $zfw_fwd_cg_lmt = number_format(20,1);
```

```
} elseif ($zfw > 36501 && $zfw <= 39500 && $tail_fuel == 0) {  
    $zfw_fwd_cg_lmt = number_format((39500 - $zfw) * 0.0013333 + 16,1);
```

```
} elseif ($zfw >= 39501 && $zfw <= 44750) {  
    $zfw_fwd_cg_lmt = number_format(16,1);
```

```
} elseif ($zfw >= 44751 && $zfw <= 44800) {  
    $zfw_fwd_cg_lmt = number_format(16.1,1);
```

```
} elseif ($zfw >= 44801 && $zfw <= 45250) {  
    $zfw_fwd_cg_lmt = number_format(($zfw - 44800) * 0.002 + 16.1,1);  
}
```

```
// Compute Forward CG Limits for Ramp Weight
```

```
if ($ramp_wt <= 33400 && $tail_fuel > 0) {  
    $ramp_wt_fwd_cg_lmt = number_format(24,1);
```

```
} elseif ($ramp_wt > 33401 && $ramp_wt <= 39500 && $tail_fuel > 0) {  
    $ramp_wt_fwd_cg_lmt = number_format((39500 - $ramp_wt) * 0.0013114 + 16,1);
```

```
} elseif ($ramp_wt <= 36500 && $tail_fuel == 0) {  
    $ramp_wt_fwd_cg_lmt = number_format(20,1);
```

```
} elseif ($ramp_wt > 36501 && $ramp_wt <= 39500 && $tail_fuel == 0) {  
    $ramp_wt_fwd_cg_lmt = number_format((39500 - $ramp_wt) * 0.0013333 + 16,1);
```

```
} elseif ($ramp_wt >= 39501 && $ramp_wt <= 44750) {  
    $ramp_wt_fwd_cg_lmt = number_format(16,1);
```

```
} elseif ($ramp_wt >= 44751 && $ramp_wt <= 44800) {  
    $ramp_wt_fwd_cg_lmt = number_format(16.1,1);
```

```
} elseif ($ramp_wt >= 44801 && $ramp_wt <= 45250) {
    $ramp_wt_fwd_cg_lmt = number_format(($ramp_wt - 44800) * 0.002 + 16.1,1);
}

// Compute Forward CG Limits for Takeoff Weight
if ($togw <= 33400 && $tail_fuel > 0) {
    $togw_fwd_cg_lmt = number_format(24,1);
}

} elseif ($togw > 33401 && $togw <= 39500 && $tail_fuel > 0) {
    $togw_fwd_cg_lmt = number_format((39500 - $togw) * 0.0013114 + 16,1);
}

} elseif ($togw <= 36500 && $tail_fuel == 0) {
    $togw_fwd_cg_lmt = number_format(20,1);
}

} elseif ($togw > 36501 && $togw <= 39500 && $tail_fuel == 0) {
    $togw_fwd_cg_lmt = number_format((39500 - $togw) * 0.0013333 + 16,1);
}

} elseif ($togw >= 39501 && $togw <= 44750) {
    $togw_fwd_cg_lmt = number_format(16,1);
}

} elseif ($togw >= 44751 && $togw <= 44800) {
    $togw_fwd_cg_lmt = number_format(16.1,1);
}

} elseif ($togw >= 44801 && $togw <= 45250) {
    $togw_fwd_cg_lmt = number_format(($togw - 44800) * 0.002 + 16.1,1);
}

// Compute Forward CG Limits for Landing Weight
if ($ldgwt <= 33400 && $tail_fuel > 0) {
    $ldgwt_fwd_cg_lmt = number_format(24,1);
}

} elseif ($ldgwt > 33401 && $ldgwt <= 39500 && $tail_fuel > 0) {
    $ldgwt_fwd_cg_lmt = number_format((39500 - $ldgwt) * 0.0013114 + 16,1);
}

} elseif ($ldgwt <= 36500 && $tail_fuel == 0) {
    $ldgwt_fwd_cg_lmt = number_format(20,1);
}

} elseif ($ldgwt > 36501 && $ldgwt <= 39500 && $tail_fuel == 0) {
    $ldgwt_fwd_cg_lmt = number_format((39500 - $ldgwt) * 0.0013333 + 16,1);
}

} elseif ($ldgwt >= 39501 && $ldgwt <= 44750) {
    $ldgwt_fwd_cg_lmt = number_format(16,1);
}

} elseif ($ldgwt >= 44751 && $ldgwt <= 44800) {
    $ldgwt_fwd_cg_lmt = number_format(16.1,1);
}

} elseif ($ldgwt >= 44801 && $ldgwt <= 45250) {
    $ldgwt_fwd_cg_lmt = number_format(($ldgwt - 44800) * 0.002 + 16.1,1);
}
// -----

// Aft CG Limits

// Compute aft CG Limits for ZFW
if ($zfw <= 31000) {
    $zfw_aft_cg_lmt = number_format(35,1);
}
```

```
} elseif ($zfw >= 31001 && $zfw <= 44000) {
    $zfw_aft_cg_lmt = number_format((44000 - $zfw) * 0.0004 + 29.8,1);
}

// Compute aft CG Limits for Ramp Wt
if ($ramp_wt <= 31000) {
    $ramp_wt_aft_cg_lmt = number_format(35,1);
}

} elseif ($ramp_wt >= 31001 && $ramp_wt <= 44000) {
    $ramp_wt_aft_cg_lmt = number_format((44000 - $ramp_wt) * 0.0004 + 29.8,1);
}

} elseif ($ramp_wt >= 44001 && $ramp_wt <= 45250) {
    $ramp_wt_aft_cg_lmt = number_format((45250 - $ramp_wt) * 0.00304 + 26,1);
}

// Compute aft CG Limits for Takeoff Wt
if ($togw <= 31000) {
    $togw_aft_cg_lmt = number_format(35,1);
}

} elseif ($togw >= 31001 && $togw <= 44000) {
    $togw_aft_cg_lmt = number_format((44000 - $togw) * 0.0004 + 29.8,1);
}

} elseif ($togw >= 44001 && $togw <= 45250) {
    $togw_aft_cg_lmt = number_format((45250 - $togw) * 0.00304 + 26,1);
}

// Compute aft CG Limits for Landing Wt
if ($ldgwt <= 31000) {
    $ldgwt_aft_cg_lmt = number_format(35,1);
}

} elseif ($ldgwt >= 31001 && $ldgwt <= 44000) {
    $ldgwt_aft_cg_lmt = number_format((44000 - $ldgwt) * 0.0004 + 29.8,1);
}

?>

<?php
// For Testing
echo "<p>Fuel in tail tank $tail_fuel</p>";

echo "<p>Zero Fuel Weight $zfw<br />";
echo "Forward Limit (zfw) $zfw_fwd_cg_lmt<br />";
echo "Aft Limit (zfw) $zfw_aft_cg_lmt</p>";

echo "<p>Ramp Weight $ramp_wt<br />";
echo "Forward Limit (Ramp) $ramp_wt_fwd_cg_lmt<br />";
echo "Aft Limit (Ramp) $ramp_wt_aft_cg_lmt</p>";

echo "<p>Takeoff Weight $togw<br />";
echo "Forward Limit (Takeoff) $togw_fwd_cg_lmt<br />";
echo "Aft Limit (Takeoff) $togw_aft_cg_lmt</p>";

echo "<p>Landing Weight $ldgwt<br />";
echo "Forward Limit (Landing) $ldgwt_fwd_cg_lmt<br />";
echo "Aft Limit (Landing) $ldgwt_aft_cg_lmt</p>";
?>
```