

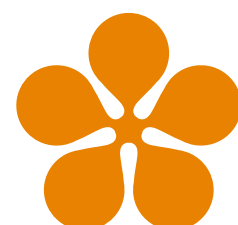
Tomáš Roskovec

PRAVDĚPODOBNOST

A HRY

K 100. ROČNÍKU ČASOPISU ROZHLEDY
MATEMATICKO-FYZIKÁLNÍ

20. 6. 2025



Jihočeská univerzita
v Českých Budějovicích
Pedagogická
fakulta

Katedra matematiky
Pedagogická fakulta
Jihočeská univerzita v Českých Budějovicích



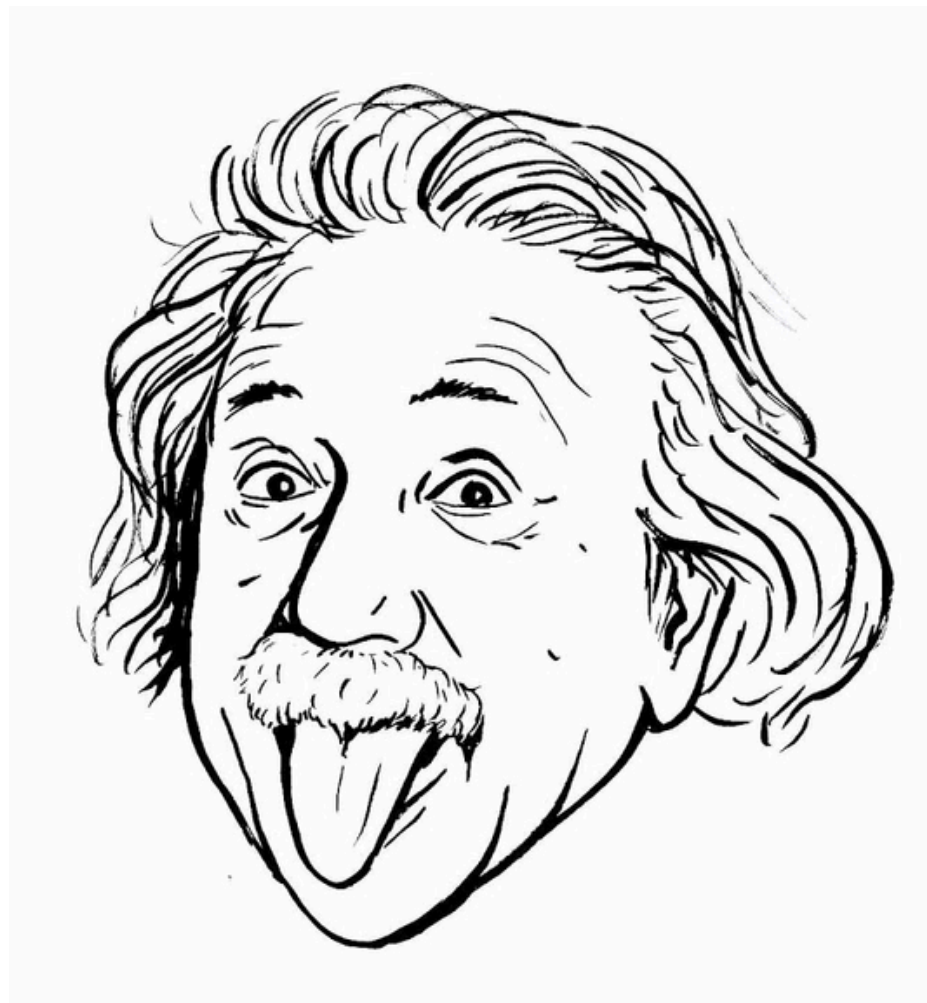
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JE TO ÚPLNÝ...**



**JE TO ZRÁDCE.
JE TO ÚPLNÝ...**



**JE TO LUMP.
JE TO ÚPLNÝ...**



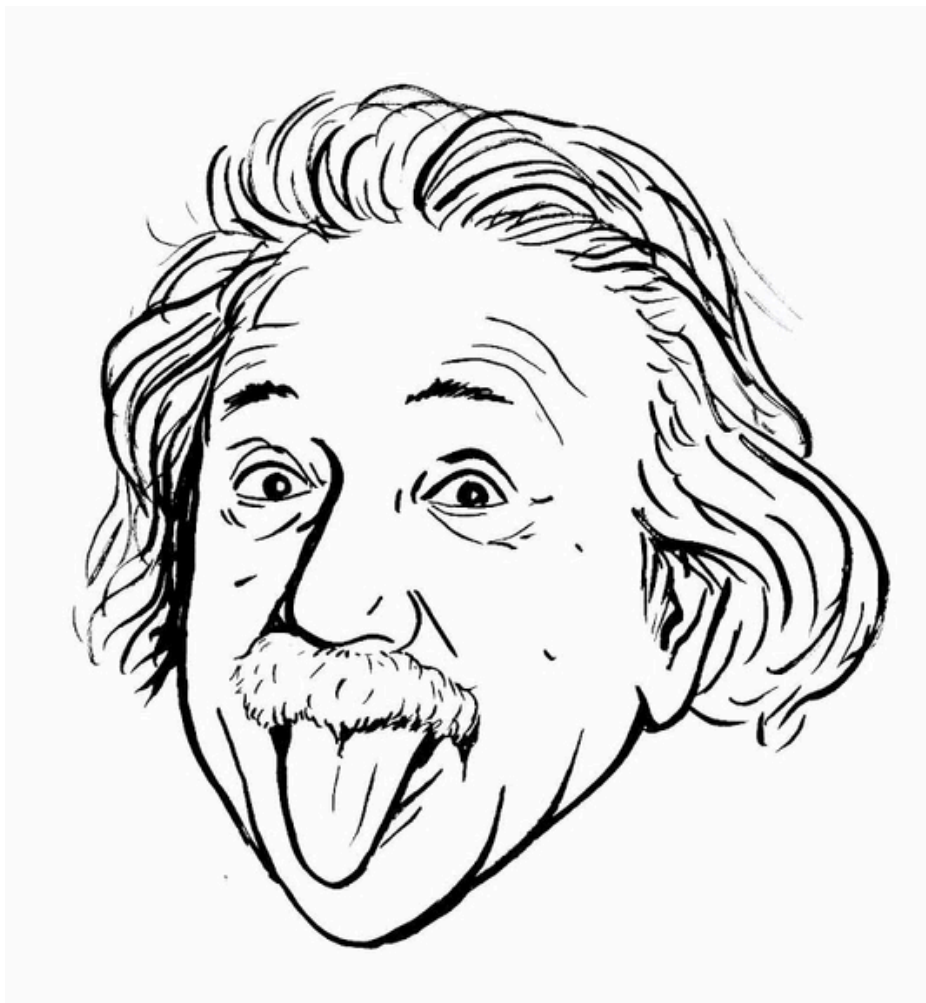
**JE CHYTRÝ.
JE TO ÚPLNÝ...**



**JE TO ZRÁDCE.
JE TO ÚPLNÝ...**



**JE TO LUMP.
JE TO ÚPLNÝ...**



**JE CHYTRÝ.
JE TO ÚPLNÝ...**

EINSTEIN



**JE TO ZRÁDCE.
JE TO ÚPLNÝ...**

JIDÁŠ

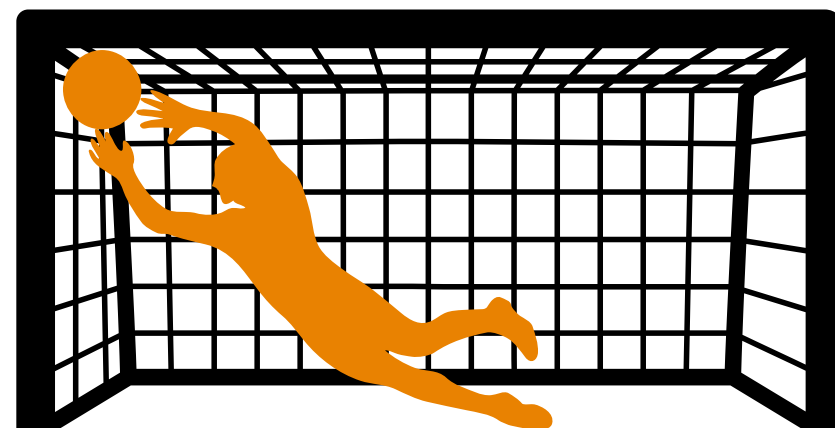
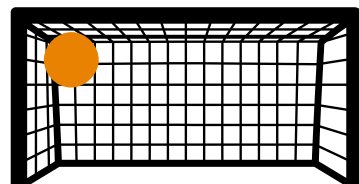
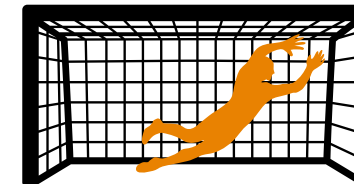
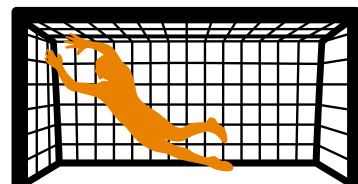


**JE TO LUMP.
JE TO ÚPLNÝ...**

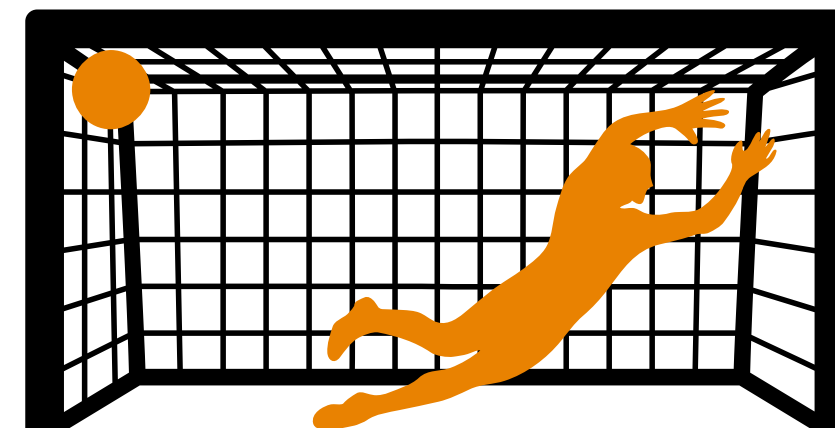
GRASEL



BRANKÁŘ



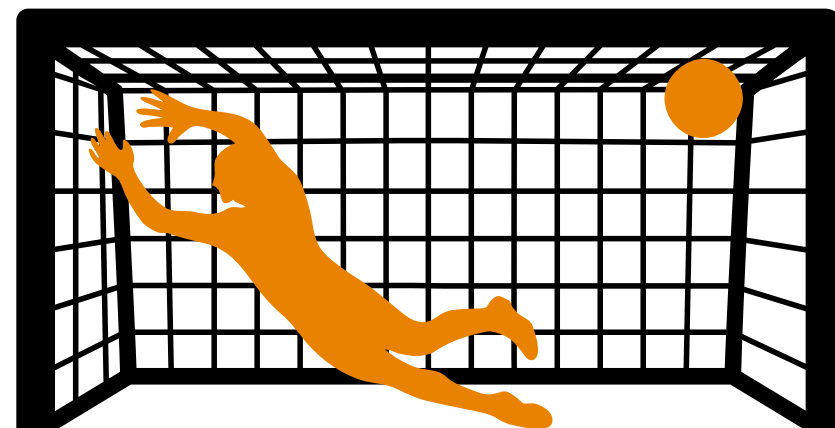
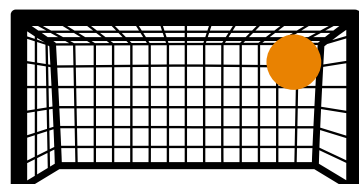
$P = 0,3$



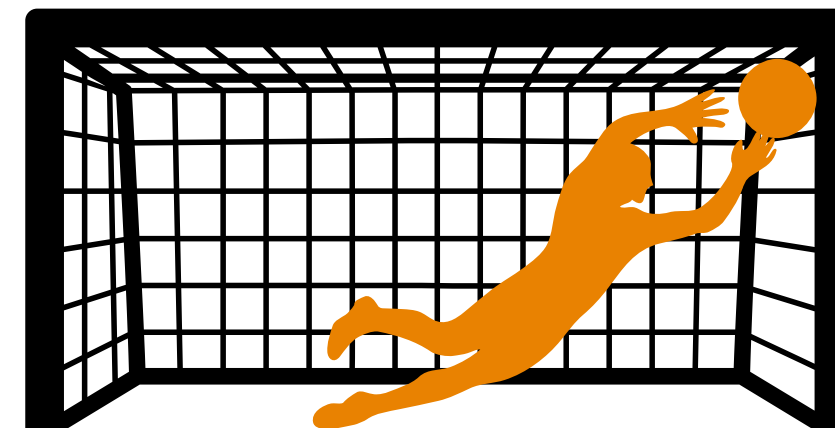
$P = 0,9$



ÚTOČNÍK



$P = 0,9$

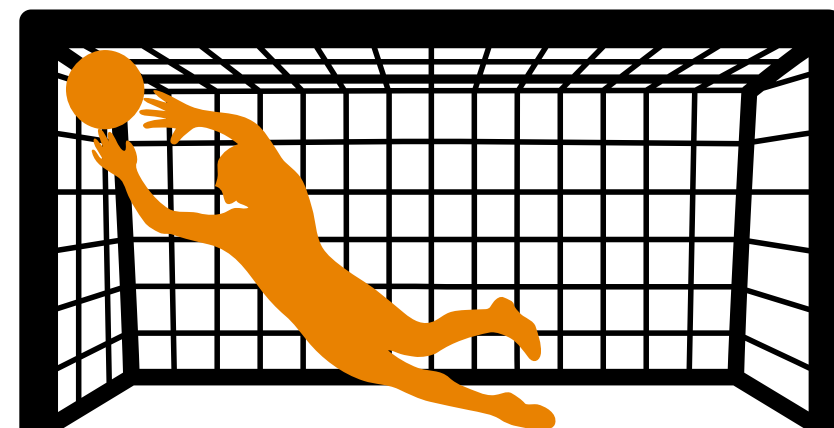
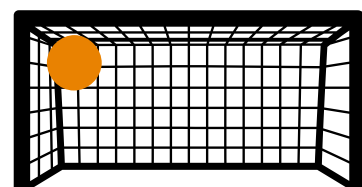
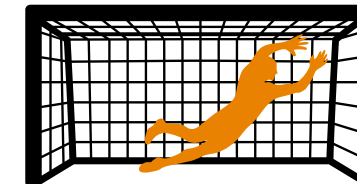
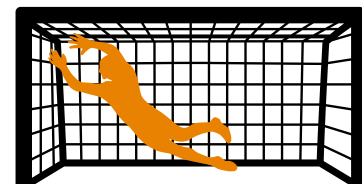


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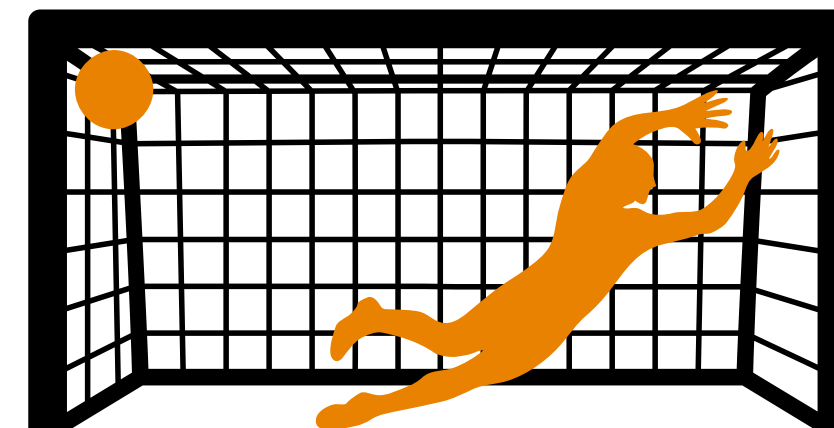


BRANKÁŘ

Brankář
minimalizuje P,
volí kam skáče

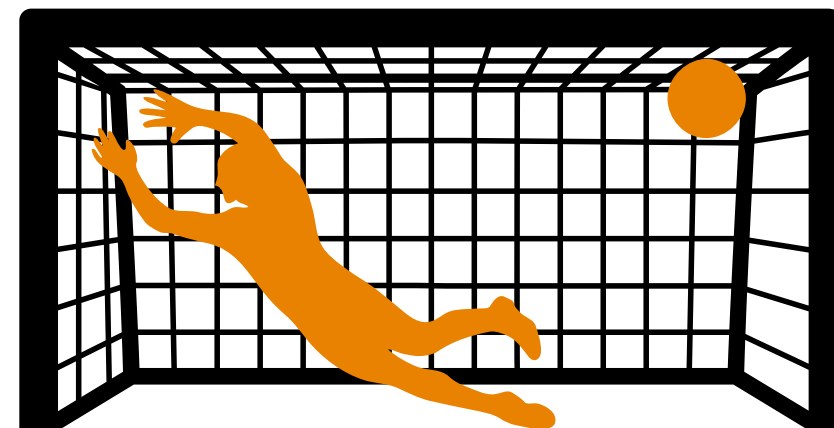
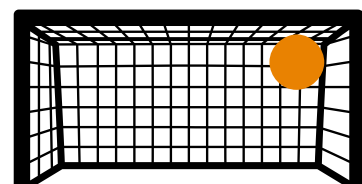


$P = 0,3$

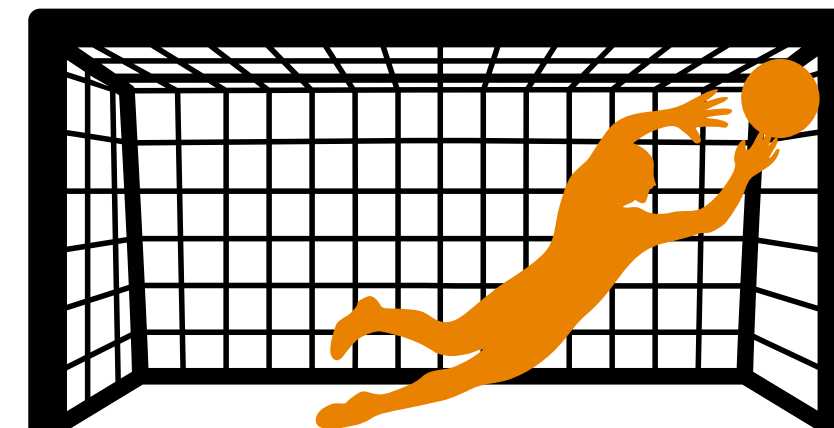


$P = 0,9$

ÚTOČNÍK



$P = 0,9$



$P = 0,3$

Útočník
maximalizuje P,
volí stranu střely

	q	1 - q
p	0,3	0,9
1 - p	0,9	0,3

$$P(p,q) = 0,3pq + 0,9p(1-q) + 0,9(1-p)q + 0,3(1-p)(1-q)$$

Vol parametr $p \in (0,1)$ tak, aby lineární funkce

$$P(q) = q(0,6 - 1,2p) + 0,6p + 0,3$$

měla na $q \in (0,1)$ co největší minimum.

Vol parametr $p \in (0,1)$ tak, aby lineární funkce

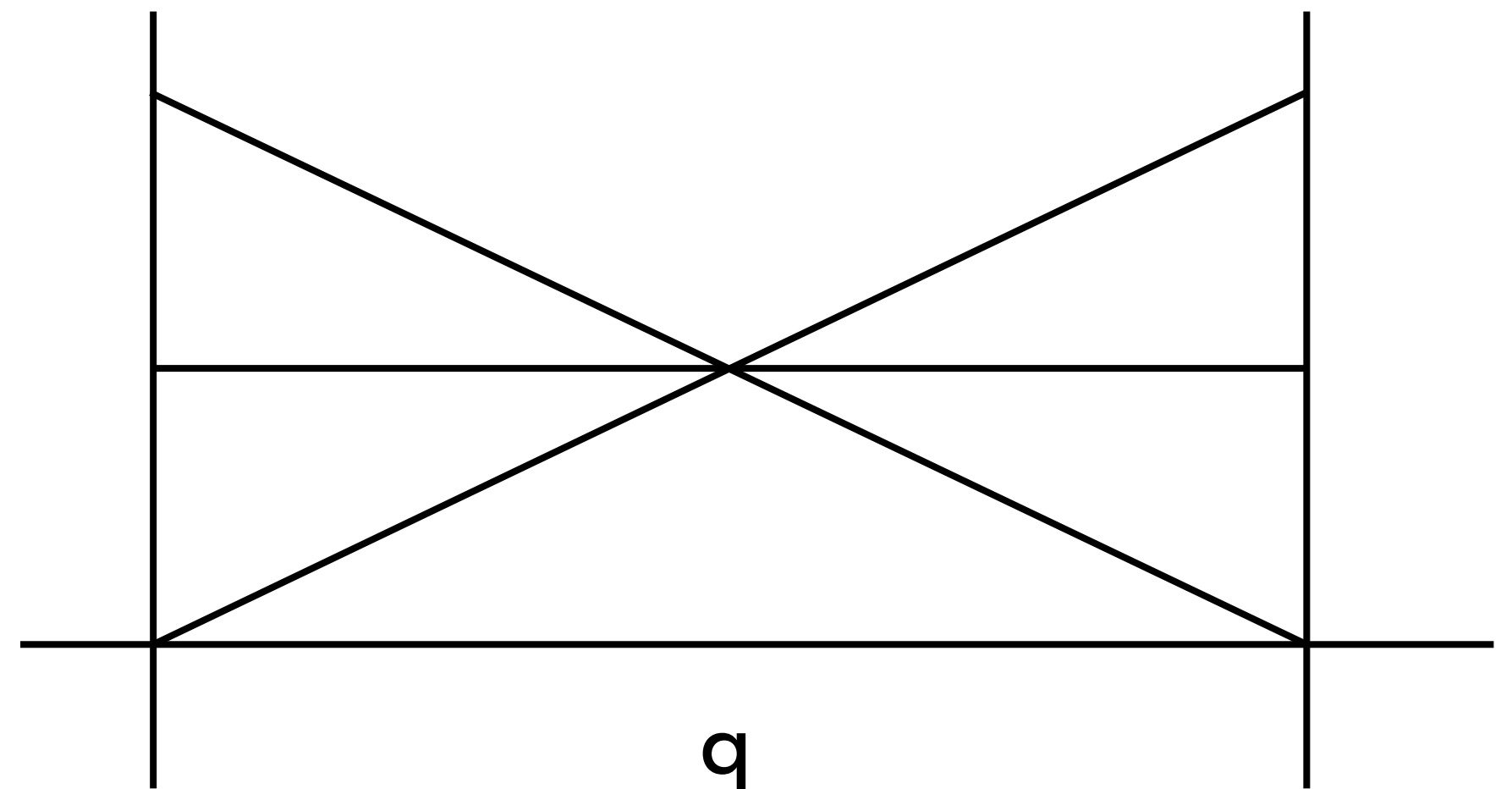
$$P(q) = q(0,6 - 1,2p) + 0,6p + 0,3$$

měla na $q \in (0,1)$ co největší minimum.

Pokud funkce **roste**, pak má P minimum v $q = 0$.

Pokud funkce **klesá**, pak má P minimum v $q = 1$.

Pokud je funkce **konstantní**, pak má P směrnici = 0.



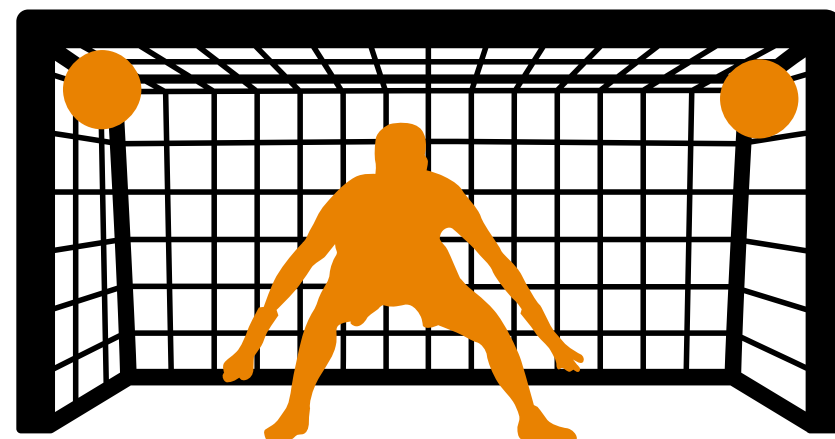
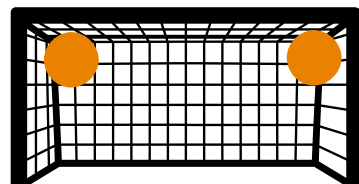
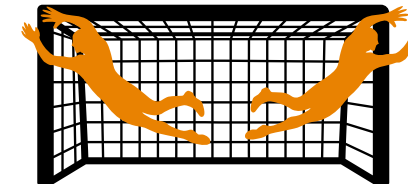
po výpočtu vyjde nejlepší konstantí funkce $P(q) = 0,6$, parametr $p = 0,5$.

ANTONÍN PANENKA

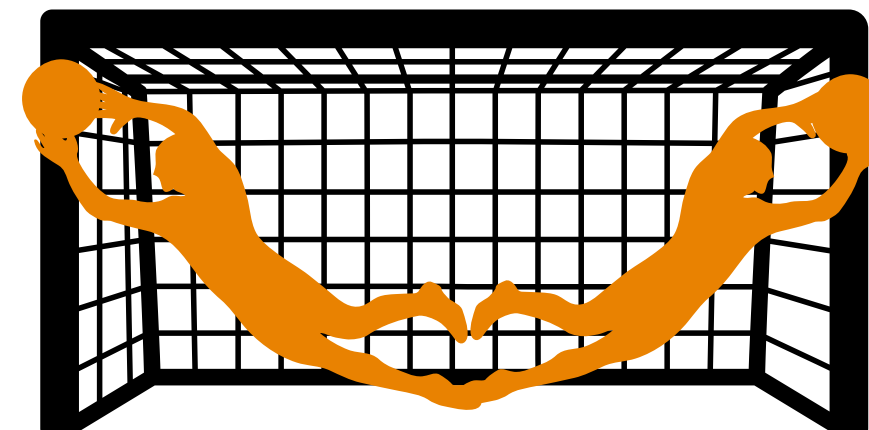




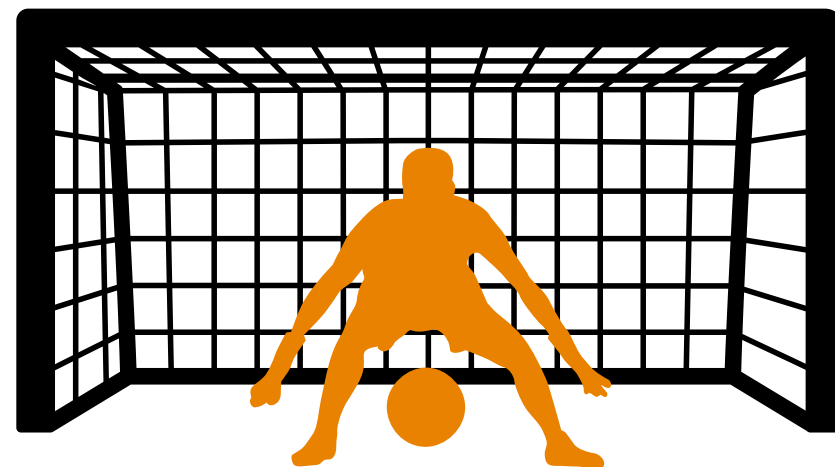
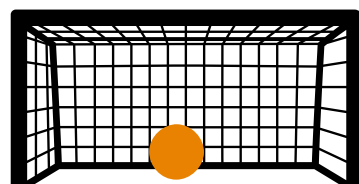
BRANKÁŘ



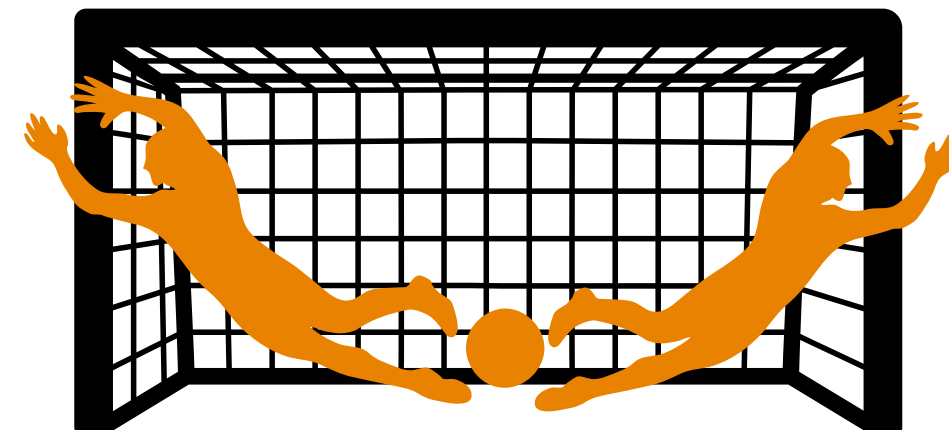
$P = 0,8$



$P = 0,6$



$P = 0$



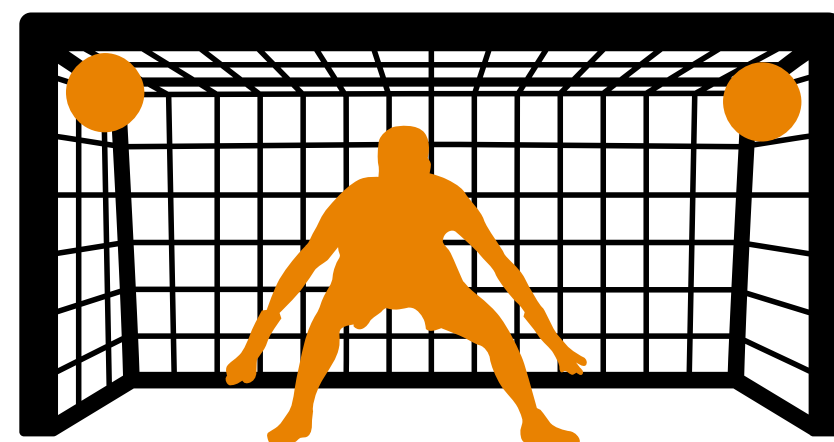
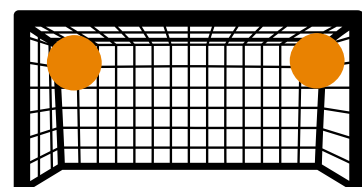
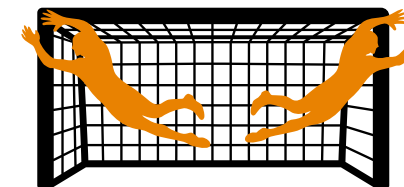
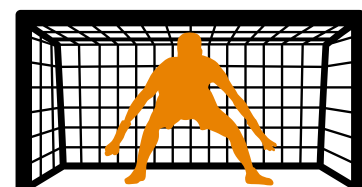
$P = 1$



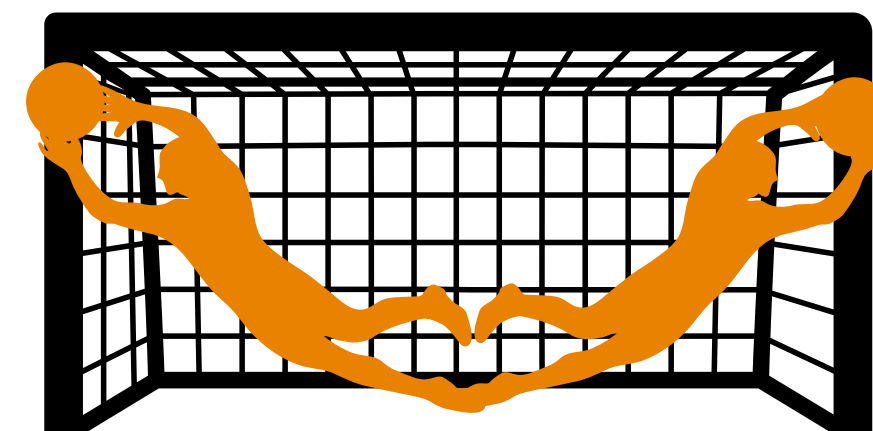
ÚTOČNÍK



BRANKÁŘ

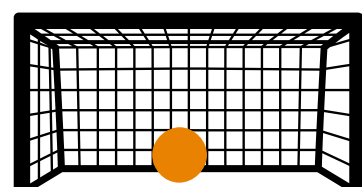


$P = 0,8$

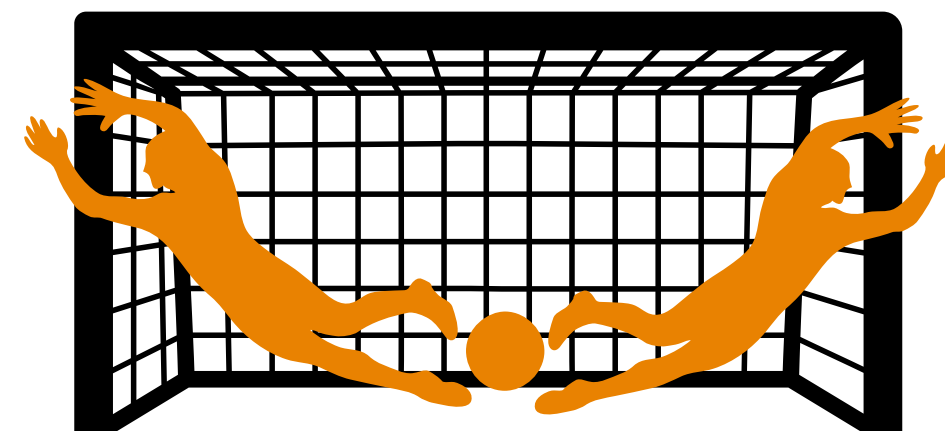


$P = 0,6$

 ÚTOČNÍK



$P = 0$

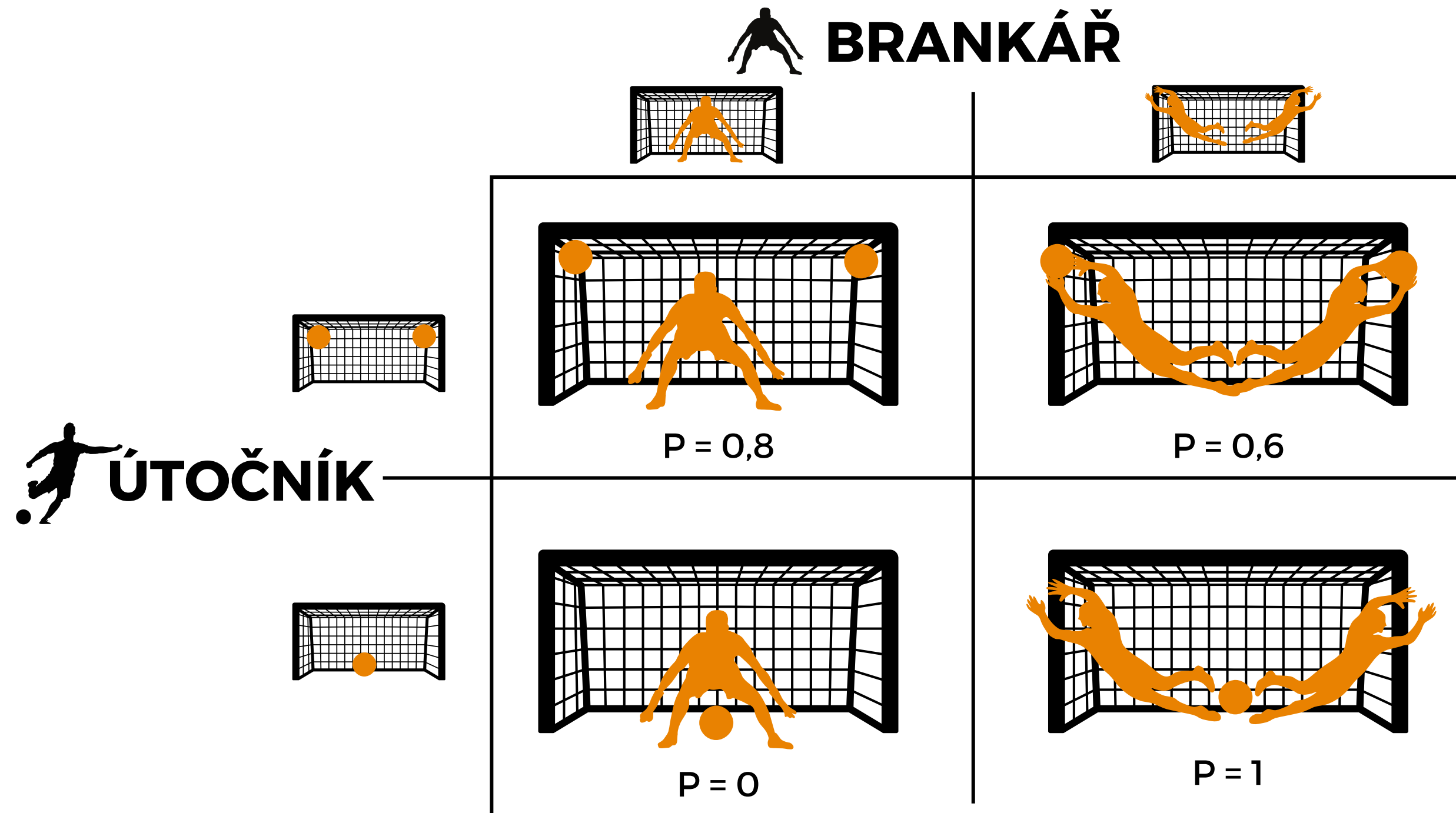


$P = 1$

VYPLATÍ SE MI OBČAS VOLIT ZJEVNĚ HORŠÍ VARIANTU?



1. S jakou p volit střelu na stranu (s jakou 1-p na střed?)
2. Jaká je P gólu při optimální strategii?



DĚKUJI ZA POZORNOST

