2. $b^2 - 4ac > 0$

$$(-8)^2 - 4 \times 2 \times (4-p) > 0$$

$$64 - 8(4-p) > 0$$

$$64 - 32 + 8p > 0$$

$$32 + 8p > 0$$

$$8p > -32$$

$$\underline{\underline{p > -4}}$$

Question			Generic scheme	Illustrative scheme	Max mark
2.			•[1] use discriminant •[2] apply condition and simplify •[3] state range	•[1] $(-8)^2 - 4(2)(4-p)$ •[2] $32 + 8p > 0$ or $8p > -32$ •[3] $p > -4$	3

Notes:

1. At •[1], treat the inconsistent use of brackets eg $(-8)^2 - 4\times2\times4-p$ or $-8^2-4(2)(4-p)$ as bad form only if the candidate deals with the unbracketed terms correctly in the next line of working.
2. If candidates have the condition 'discriminant $=0$', then •[2] and •[3] are unavailable. However, see Candidate E.
3. If candidates have the condition 'discriminant <0', 'discriminant ≤ 0' or 'discriminant ≥ 0' then •[2] is lost but •[3] is available.

Commonly Observed Responses:

Candidate A - bad form $(-8)^2 - 4\times2\times4-p>0$ $32+8p>0$ •[1] ✓ •[2] ✓ $p>-4$ •[3] ✓	**Candidate B - no coefficient of p** $(-8)^2 - 4\times2\times\underline{4-p}>0$ $32-p>0$ •[1] ✗ •[2] $\boxed{\checkmark\ 2}$ $p<32$ •[3] $\boxed{\checkmark\ 2}$
Candidate C - bad form $-8^2-4\times2\times(4-p)>0$ $32+8p>0$ •[1] ✓ •[2] ✓ $p>-4$ •[3] ✓	**Candidate D - not bad form** $\underline{-8}^2-4\times2\times(4-p)>0$ $-96+8p>0$ •[1] ✗ •[2] $\boxed{\checkmark\ 2}$ $p>12$ •[3] $\boxed{\checkmark\ 1}$
Candidate E - condition stated initially Real and distinct roots $b^2-4ac>0$ $(-8)^2-4(2)(4-p)=0$ •[1] ✓ $32+8p=0$ $p=-4$ so $p>-4$ •[2] ✓ •[3] ✓	**Candidate F** $8^2-4(2)(4-p)>0$ •[1] ✗ $32+8p>0$ •[2] $\boxed{\checkmark\ 1}$ $p>-4$ •[3] $\boxed{\checkmark\ 1}$ However, $64-4(2)(4-p)>0$ as the first line of working may be awarded •[1]