

## Questions

- 1.2 Given:  $2^x + 2^{x+2} = -5y + 20$
- 1.2.1 Express  $2^x$  in terms of  $y$ . (2)
- 1.2.2 How many solutions for  $x$  will the equation have if  $y = -4$ ? (2)
- 1.2.3 Solve for  $x$  if  $y$  is the largest possible integer value for which  $2^x + 2^{x+2} = -5y + 20$  will have solutions. (3)

## Answers

1.2.1	$2^x + 2^{x+2} = -5y + 20$ $2^x(1 + 2^2) = -5y + 20$ $2^x = \frac{-5y+20}{5}$ <b>OR</b> $2^x = -y + 4$	✓ $2^x$ common factor ✓ answer (2)
1.2.2	If $y = -4$ , $2^x + 2^{x+2} = -5y + 20$ $2^x + 2^{x+2} = 40$ $2^x(1 + 2^2) = 40$ $2^x = 8$ $2^x = 2^3$ $x = 3$	✓ substitution ✓ answer (2)
1.2.3	$-y + 4 > 0$ $y < 4$ Largest integer value of $y$ is 3 $2^x = -3 + 4$ $2^x = 1$ $x = 0$	✓ $-y + 4 > 0$ ✓ $y = 3$ ✓ $x = 0$ (3) <b>[21]</b>