HW

1. (a) Simplify $e^9 \div e^5$

.....

(1)

(b) Simplify $(y^2)^8$

.....

(1)

2. (a) Simplify $t^9 \div t^3$

.....

(1)

(b) Simplify $w^5 \times w^7$

.....

(1)

(c) Simplify $(5xy^2)^3$

.....

(2)

(Total for Question 9 is 4 marks)

3. **(a) Simplify fully** $\left(\frac{256x^{20}}{y^8}\right)^{-\frac{1}{4}}$

4. (c) Simplify $\left(\frac{y^5}{8x^6y^8}\right)^{-\frac{1}{3}}$

[3 marks]

5. $\frac{8}{2^7} = 2^n$

(a) Find the value of n.

$n =$ .....

(2)

$(13^{-6})^4 \times 13^5 = 13^k$

(b) Find the value of k.

$k =$ .....

(2)

(Total for Question 10 is 4 marks)

6. (b) Given that $\left(\sqrt{\frac{y}{x}}\right)^{-5} = \frac{x^m}{y^m}$ where $x \neq y$

find the value of m.

7. (b) Make e the subject of the formula $h = 3e + f$

(2)

8. (b) Make p the subject of the formula $t = \dfrac{7 - 2p}{3p + 1}$

9. (c) Make g the subject of $g - 1 = gh + 3h$

10. $y = at^2 - 2at$

$x = 2a\sqrt{t}$

Express y in terms of x and a.

Give your answer in the form

$$y = \frac{x^p}{ma^3} - \frac{x^q}{na}$$

where p, q, m and n are integers.

11. Solve $8y - 18 = 3(y + 3)$
Show clear algebraic working.

12. (a) Solve $2y + \frac{2 - 3y}{4} = \frac{1}{4}$

Show clear algebraic working.

13. The diagram shows a parallelogram $ABCD$.

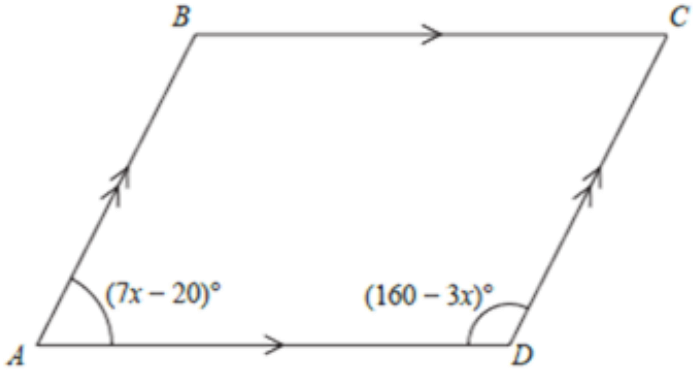

Diagram **NOT** accurately drawn

Angle $BAD = (7x - 20)°$
Angle $ADC = (160 - 3x)°$

Work out the value of x.
Show clear algebraic working.