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Mathematics, Science and Computer Department

INTENSIVE MATHEMATICS (PBM1035)
Session December 2017
SELF-EXERCISE 12

Instructions

- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.

1. Simplify the following expressions, leaving only positive indices in the answer.
   (a) $4^2 \times 4^{-3}$
   (b) x^2x^5
   (c) $(4ab^2)^2$
   (d) $(-3)^3$
   (e) $x^2z^{-3} \times (x^2z)^2$
   (f) $\frac{(-a^4b)^3}{-a^4b^3}$
   (g) $32^{\frac{3}{5}}$
   (h) $(3a)^{-1} \times 3a^{-1}$

2. Solve each of the following equations.
   (a) $3^{3x} = 81$
   (b) $2^x.4^{x+1} = 64$
   (c) $8^{x^2} - 16^{x+1} = 0$
   (d) $8x^3 = 27$
   (e) $8^x = \frac{1}{4}$
   (f) $5^{3x} \div 25^{x+1} = \frac{1}{125}$
   (g) $32^{4x} = 4^{8x+6}$
   (h) $3^{2x} = \frac{1}{243}$