Pre-Calculus Multiple Choice Questions - Chapter A5

1 Express the domain of the following function
$f(x) = 2^{-x}$

	A5.1

a (0, 1)
b (0, ∞)
c (-∞, 0)
d (-∞, ∞)

2 Express the range of the following function
$f(x) = 2^{-x}$

	A5.1

a (0, 1)
b (0, ∞)
c (-∞, 0)
d (-∞, ∞)

3 Express the range of the following function
$f(x) = 3^{x}$

	A5.1

a (0, 1)
b (0, ∞)
c (-∞, 0)
d (-∞, ∞)

Pre-Calculus Multiple Choice Questions - Chapter A5

1 Rationalize the denominator of the following function $\frac{2}{\sqrt{3}}$

	A5.2

a $\frac{2\sqrt{3}}{\sqrt{3}}$

b $2\sqrt{3}$

c $\frac{2}{3}$

d $\frac{2\sqrt{3}}{3}$

2 Rationalize the denominator of the following function $\frac{1}{\sqrt{2}}$

	A5.2

a $\frac{\sqrt{2}}{3}$

b $\frac{\sqrt{2}}{2}$

c $\sqrt{2}$

d $\frac{1}{2}$

3 Rationalize the denominator of the following function $\frac{1+\sqrt{3}}{\sqrt{2}}$

	A5.2

a $\frac{\sqrt{2}+\sqrt{3}}{2}$

b $\frac{\sqrt{2}-\sqrt{6}}{2}$

c $\frac{\sqrt{2}+\sqrt{5}}{2}$

d $\frac{\sqrt{2}+\sqrt{6}}{2}$

Pre-Calculus Multiple Choice Questions - Chapter A5

1 Simplify the following rational function $\sqrt[6]{x^{18}}$

	A5.3

a x
b x^3
c x^2
d x^4

2 Simplify the following rational function $\sqrt{63y^3}$

	A5.3

a $3y\sqrt{7y}$
b $7y\sqrt{3y}$
c $7y\sqrt{9y}$
d $9y\sqrt{7y}$

3 Simplify the following rational function $\sqrt[4]{x^{21}y^{15}}$

	A5.3

a $x^5y^3\sqrt[4]{xy}$
b $x^5y^4\sqrt{xy^3}$
c $x^5y^3\sqrt[4]{xy^3}$
d $x^3y^3\sqrt{xy^3}$

Pre-Calculus Multiple Choice Questions - Chapter A5

1 Which of the following gives the best approximation for the zero of $f(x) = 4 - e^{x}$?

a $x = -1.386$ **b** $x = 0.386$

c $x = 1.386$ **d** $x = 3$

e There are no zeroes

	A5.4

2 Which of the following gives the best approximation for the zero of $f(x) = e^{-x} - 2$?

a $x = -0.693$ **b** $x = 0.693$

c $x = -0.482$ **d** $x = 0.482$

e There are no zeroes

	A5.4

3 Which of the following are equivalent to the following: 27^{3x}

a 3^{4x} **b** 3^{6x}

c 3^{5x} **d** 3^{9x}

e None are equivalent

	A5.4

Pre-Calculus Multiple Choice Questions - Chapter A5

1 Evaluate the following expression:
$\log_5 25$

	A5.5

a -2 **b** -3
c 2 **d** 3

2 Evaluate the following expression:
log 0.001

	A5.5

a -4 **b** -3
c -5 **d** -2

3 Evaluate the following expression:
$\log_{11} 121$

	A5.5

a -2 **b** 11
c 2 **d** -11

Pre-Calculus Multiple Choice Questions - Chapter A5

1 Simplify the following expression:
$6 \ln (x - 4) + 3 \ln (x)$

	A5.6

a $\ln x^3(x - 4)^6$
b $\ln x^3 + \ln (x - 4)^6$
c $\ln x^3 (\ln (x - 4)^6)$
d None of the above

2 Express the following logarithm in terms of ln 2 and ln 3
ln 54

	A5.6

a 2 ln 2 + 2 ln 3
b 3 ln 2 + ln 3
c 2 ln 2 + 3 ln 3
d ln 2 + 3 ln 3

3 Express the following logarithm in terms of ln 2 and ln 3
ln (9 / 8)

	A5.6

a 2 ln 3 - 3 ln 2
b 2 ln 2 - 3 ln 3
c 2 ln 2 + 3 ln 3
d 3 ln 2 - 2 ln 3

Pre-Calculus Multiple Choice Questions - Chapter A5

1 Which of the following is a solution of the equation $2 - 3^{-x} = -1$?

a $x = -2$	**b** $x = -1$	A5.7
c $x = 0$	**d** $x = 1$	
e There are no solutions		

2 Solve the following equation algebraically $(1.045)^t = 2$

a 10.21	**b** 15.75	A5.7
c 13.98	**d** 18.88	
e There are no solutions		

3 Solve the following equation algebraically $e^{0.05t} = 3$

a 10.22	**b** 18.42	A5.7
c 21.97	**d** 24.99	
e There are no solutions		