## Algebra Test 1A

Professional Development from Texas Instruments

Name: $\qquad$

Assessment

Student

## Question: 1

Which one of the following is not a factor of: $x^{4}-2 x^{3}-x^{2}+2 x$ ?
a) $x-1$
b) $x+1$
c) $x$
d) $x-2$
e) $x+2$

Question: 2
The equation to the graph shown is given by:
a) $f(x)=(x-a)(x-b)(x-c)$
b) $\quad f(x)=(x+a)(x+b)(x+c)$
c) $\quad f(x)=(x-a)(x-b)(x-c)$
d) $\quad f(x)=(x-a)(x-b)(x-c)$
e) $\quad f(x)=(x-a)(x-b)(x-c)$


## Question: 3

If $x-a$ is a factor of: $x^{3}+(4-a) x^{2}-4 x+1$ the value of $a$ is:
a) $\frac{1}{4}$
b) 4
c) $\frac{1}{2}$
d) $\frac{-1}{2}$
e) 2.78316

Question: 4
Given $g(x)=\ln \left(\frac{x}{2}\right)-1$ and $g(f(x))=x$ then $f(x)$ is equal to:
a) $x$
b) $2 e$
c) $\ln (2 x)+1$
d) $2 e^{x+1}$
e) $2 e^{x}+1$

## Question: 5

If $a$ and $b$ are non-zero real numbers, and the graph of $y=a x^{2}+b$ is defined on its maximal domain, then the graph is
a) a one-to-one function
b) a many-to-one function
c) a one-to-many function
d) a many-to-one relation
e) not a relation

Question: 6
Given $f:(-2 a, a] \rightarrow R, f(x)=-a-x$ where $a>0$, the range of the function $f$ is
a) $(-2 a, a]$
b) $[-2 a, a)$
c) $(-2 a, a)$
d) $[a, 2 a)$
e) $(a, 2 a]$

## Question: 7

If $f(x)=\left(x^{2}+a x+36\right)\left(x^{2}+8 x+b\right)$ has no solutions for $f(x)=0$ then:
a) $a=6$ and $b=64$
b) $-6<a<6$ and $-64<b<64$
c) $a<12$ and $b<16$
d) $-12<a<12$ and $-16<b<16$
e) $-12<a<12$ and $b>16$

## Question: 8

Given $f(x)$ is quadratic and $a$ is a real constant, if $f(a)=0, f(3 a)=0$ and $f(0)=3 a^{2}$, which of the following is true?
a) The line $x=-2 a$ is the axis of symmetry
b) The point $\left(2 a, a^{2}\right)$ is a minimum turning point
c) The point $\left(2 a,-a^{2}\right)$ is a minimum turning point
d) The point $\left(2 a, a^{2}\right)$ is a maximum turning point
e) The point $\left(2 a,-a^{2}\right)$ is a maximum turning point

## Question: 9

For the function $f(x)=a+\frac{b}{(x+c)^{2}}$, on its maximal domain, which of the following is false?
a) The graph has a vertical asymptote at $x=-c$.
b) The graph has a horizontal asymptote at $y=a$.
c) The maximal domain is $R \backslash\{-c\}$.
d) The range is $R \backslash\{-b\}$.
e) The graph is not continuous.

Question: 10
Given $f(x)=\sqrt{x+3}$ and $g(x)=\sqrt{1-x}$ defined on their maximal domain, then the graph of $h(x)=f(x)-g(x)$ has maximal domain and range respectively given by:
a) $[-3, \infty), R$
b) $[1, \infty), R^{+}$
c) $[-\infty, 3) \cup[1, \infty), R$
d) $[-3,1], R^{+}$
e) $[-3,1],[-2,2]$

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