AB AND BC CALCULUS FREE-RESPONSE QUESTIONS BY TYPE

| Table | | Туре | | | | | | | | | | |
|---|---------|------|--------|-----|--------------|-----|-------|--------|------|--------|-------|--------|
| Pear Pear | Exam | 1 | 2 | 3g | 3a | 4 | | 6 | 7 | 8 | 9 | 10 |
| 1998 BC 5 | Year | Rate | Motion | _ | ph | A-V | Table | Dif Eq | Misc | Vector | Polar | Series |
| 1999 AB | 1998 AB | 5 | | 3 | 2 | 1* | 3 | 4* | 6 | | | |
| 1999 BC | 1998 BC | 5 | | 6 | 2 | 1* | | 4* | | | | 3 |
| 2000 AB | 1999 AB | | 1 | 5 | 4 | 2 | 3 | | 6 | | | |
| 2000 BC | 1999 BC | | | 5 | | 2 | 3 | 6 | | 1 | | 4 |
| 2001 AB | 2000 AB | 4 | 2 | 2 3 | | 1 | | 6* | 5 | | | |
| 2001 BC | 2000 BC | | 2 4 | 2 | - | 1 | | 6* | 5 | 4 | | 3 6 |
| 2002 AB 2 3* 4 1 6 5 3 6 2002 BC 2 3* 4 1 5 3 6 2003 AB 3 2 3 4 6 1 3 5 3 2 3 6 4 3 6 2 3 6 4 3 6 6 2 3 6 4 3 6 6 2 3 6 4 3 6 6 2 3 6 4 3 6 2 3 6 4 3 6 2 3 6 4 3 6 3 6 4 3 6 4 3 6 4 3 6 4 4 4 2 6 1 3 4 4 2 6 1 3 4 4 4 5 1 3 4 3 6 | 2001 AB | | 3 | 3 | 4 5 | 1 | 2 | 6 | 6 | 1 | | |
| 2002 BC 2 3* 4 1 5 3 6 2003 AB 3 2 3 4 6 1 3 5 2 3 6 2003 BC 4 1 1 5 2 3 6 2004 AB 1 3 5 3 2 3 6 4 3 2004 AB 1 3 5 3 2 3 6 4 3 6 2004 AB 1 3 5 3 6 4 3 6 2005 AB 2 5 5 1 3 4 6 1 4 5* 3 6 2005 AB 2 4 3 6 1 4 5* 3 6 2 6 1 3.5 4 4 2 6 1 3.5 4 4 4 5 1 2.2 3 6 <td>2001 BC</td> <td></td> <td>3</td> <td>3</td> <td>4</td> <td></td> <td>2</td> <td>5</td> <td>5</td> <td>1</td> <td></td> <td>6</td> | 2001 BC | | 3 | 3 | 4 | | 2 | 5 | 5 | 1 | | 6 |
| 2003 AB 3 2 3 4 6 1 3 5 2 3 6 2004 AB 1 3 5 3 2 3 6 4 3 6 2004 BC 1 2 3 5 4 3 6 2005 AB 2 5 5 1 3 4 6 2 6 2005 AB 2 5 5 1 3 4 6 2 6 2005 AB 2 4 3 6 1 4 5* 3 6 2006 AB 2 4 3 6 1 4 5* 3 6 2 2007 AB 2 4 2 6 1 35 4 4 6 1 2 5 3 6 2007 AB 2 4 4 4 1 5 3 6 2 3 6 </td <td>2002 AB</td> <td>2</td> <td>3*</td> <td>4</td> <td></td> <td>1</td> <td>6</td> <td></td> <td>5</td> <td></td> <td></td> <td></td> | 2002 AB | 2 | 3* | 4 | | 1 | 6 | | 5 | | | |
| 2003 BC 4 1 5 2 3 6 2004 AB 1 3 5 3 2 3 6 4 3 6 2004 BC 1 2 3 5 4 3 6 6 2005 AB 2 5 5 1 3 4 2 6 2005 BC 2 5 5 1 3 4 2 6 2005 BC 2 5 5 1 3 4 2 6 2 2006 BC 2 1 4 5* 3 6 6 2 6 2 6 1 3 6 4 4 5* 1 3 6 4 4 5* 1 2 3 6 2 3 6 2 3 6 3 6 3 6 3 6 3 6 3 6< | 2002 BC | 2 | 3* | 4 | | 1 | | 5 | | 3 | | 6 |
| 2004 AB 1 3 5 3 2 3 6 4 3 6 2005 AB 2 5 5 1 3 4 6 9 9 2005 BC 2 5 5 1 3 4 6 9 9 9 6 9 | 2003 AB | 3 | 2 | 3 4 | 6 | 1 | 3 | | 5 | | | |
| 2004 BC 1 2 3 5 4 3 6 2005 AB 2 5 5 1 3 4 6 2 6 2005 BC 2 5 5 1 3 4 2 6 2006 AB 2 4 3 6 1 4 5* 3 6 2006 BC 2 4 2 6 1 35 4 4 6 2 3 6 6 2 3 6 6 2 3 6 6 2 3 6 4 4 4 4 1 5 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 | 2003 BC | | | 4 | | 1 | | | 5 | 2 | 3 | 6 |
| 2005 AB 2 5 5 1 3 4 6 2 6 2005 BC 2 5 5 1 3 4 2 6 2006 AB 2 4 3 6 1 4 5* 3 6 2007 AB 2 4 2 6 1 35 4 4 6 1 2 5 3 6 2007 BC 2 4 1 5 3 6 3 6 2008 AB 4 4 6 1 2 5 3 3 6 2008 BC 4 4 5 1 23 6 3 6 3 6 2009 BC 2 1 1 4 5 4 3 6 3 6 2010 AB 13 35 4 2 6 3 6 3 6 2011 AB < | 2004 AB | 1 | 3 | 5 | 3 | 2 | 3 | 6 | 4 | 3 | | |
| 2005 BC 2 5 5 1 3 4 2 6 2006 AB 2 4 3 6 1 4 5* 3 6 2006 BC 2 4 2 6 1 35 4 4 6 2007 BC 2 4 1 5 3 6 6 2008 AB 4 4 6 1 2 5 3 6 2008 BC 4 4 5 1 2 3 6 36 2009 AB 23 1 16 4 5 4 3 6 2009 BC 2 1 4 5 4 3 6 2010 AB 13 35 4 2 6 4 3 6 2011 AB 1 4 6 3* 2 5 3 6 2012 AB 6 3 | 2004 BC | 1 | | | | 2 | 3 | 5 | 4 | 3 | | 6 |
| 2006 AB 2 4 3 6 1 4 5* 3 6 2007 AB 2 4 2 6 1 35 4 4 2007 BC 2 4 1 5 3 6 2008 AB 4 4 6 1 2 5 3 2008 BC 4 4 5 1 23 6 36 2009 AB 23 1 16 4 5 4 3 6 2009 BC 2 1 5 4 3 6 3 6 2010 AB 13 35 4 2 6 3 6 2010 BC 1 4 6 3* 2 5 3 6 2011 AB 1 4 6 3* 2 5 1 6 2012 AB 6 3 4 2 1 5 | 2005 AB | 2 | 5 | 5 | | 1 | 3 4 | 6 | | | | |
| 2006 BC 2 4 2 6 1 3 6 2007 AB 2 4 2 6 1 35 4 4 2007 BC 2 4 1 5 3 6 2008 AB 4 4 6 1 2 5 3 6 2008 BC 4 4 5 1 2 3 6 36 2009 AB 23 1 16 4 5 4 3 6 2009 BC 2 1 5 4 3 6 6 2010 AB 13 35 4 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | 2005 BC | 2 | 5 | 5 | | 1 | 3 | 4 | | | 2 | 6 |
| 2007 AB 2 4 2 6 1 35 4 3 6 2007 BC 2 4 1 5 3 6 2008 AB 4 4 6 1 2 5 3 3 6 2008 BC 4 4 5 1 2 3 6 36 36 36 2009 BC 2 1 4 5 4 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 4 2 5 3 6 6 3 4 2 1 5 1 6 4 6 3 4 2 1 5 1 | 2006 AB | 2 | 4 | 3 | 6 | 1 | 4 | 5* | | | | |
| 2007 BC 2 4 1 5 3 6 2008 AB 4 4 6 1 2 5 3 3 6 2008 BC 4 4 5 1 2 3 6 3 6 3 6 2009 AB 2 3 1 1 6 4 5 4 3 6 200 6 3 4 2 1 5 1 6 4 6 3 4 2 1 5 1 1 6 3 4 2 1 5 1 1 6 | 2006 BC | 2 | | | - - | 1 | 4 | 5* | | 3 | | 6 |
| 2008 AB 4 4 6 1 2 5 3 3 6 2009 AB 23 1 16 4 5 1 23 6 3 6 2009 BC 2 1 5 4 3 6 6 6 3 6 6 6 3 6 6 6 3 6 6 3 6 6 3 6 6 3 6 6 3 6 6 6 3 4 2 5 3 6 6 6 3 4 2 5 1 6 6 6 3 4 2 1 5 1 6 6 3 4 2 1 5 1 6 6 3 4 2 1 5 1 6 6 3 4 2 1 5 1 6 4 6 3 1 4 4 4 5 3 6 3 1 4 4 4 | 2007 AB | 2 | 4 | 2 | 6 | 1 | 3 5 | 4 | | | | |
| 2008 BC 4 4 5 1 2 3 6 3 6 2009 AB 2 3 1 16 4 5 3 6 2009 BC 2 1 5 4 3 6 2010 AB 13 35 4 2 6 3 6 2010 BC 1 4 6 3* 2 5 3 6 2011 AB 1 4 6 3* 2 5 1 6 2011 BC 4 3* 2 5 1 6 6 2012 AB 6 3 4 2 1 5 1 6 2012 BC 3 1 4 5 3 6 1 4 6 4 2 4 6 4 6 4 2 4 6 6 4 4 6 4 2 4 6 6 4 4 6 4 4 6 4 6 4 4 6 | 2007 BC | 2 | | | 4 | 1 | 5 | | | | 3 | 6 |
| 2009 AB 23 1 16 4 5 4 3 6 2010 AB 13 35 4 2 6 6 6 2010 BC 1 4 2 5 3 6 6 2011 AB 1 4 6 3* 2 5 1 6 2011 BC 4 3* 2 5 1 6 6 2012 AB 6 3 4 2 1 5 2 46 2012 BC 3 14 54 2 46 6 46 6 46 2 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 6 46 | 2008 AB | | 4 | 4 | 6 | 1 | 2 | 5 | 3 | | | |
| 2009 BC 2 1 5 4 3 6 2010 AB 13 35 4 2 6 6 2010 BC 1 4 2 5 3 6 2011 AB 1 4 6 3* 2 5 1 6 2011 BC 4 3* 2 5 1 6 6 3 4 2 1 5 1 6 6 3 4 2 1 5 1 6 6 3 4 2 1 5 1 6 4 6 4 2 4 6 4 6 4 6 4 4 6 4 4 4 3 5 4 2 6 4 4 4 3 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 2008 BC | | 4 | 4 | 5 | 1 | 2 3 | 6 | | | | 3 6 |
| 2010 AB 13 35 4 2 6 3 6 2010 BC 1 4 2 5 3 6 2011 AB 1 4 6 3* 2 5 1 6 2011 BC 4 3* 2 5 1 6 6 3 4 2 1 5 5 1 6 6 3 4 2 1 5 5 1 6 4 6 4 2 4 6 4 6 4 2 4 6 4 6 4 4 4 5 3 6 4 6 4 4 4 3 5 5 2 6 6 4 4 4 3 5 4 4 4 4 3 5 4 | 2009 AB | 23 | 1 | 16 | | 4 | 5 | | | | | |
| 2010 BC 1 4 2 5 3 6 2011 AB 1 4 6 3* 2 5 1 6 2011 BC 4 3* 2 5 1 6 2012 AB 6 3 4 2 1 5 5 1 6 2012 BC 3 14 54 2 46 6 4 6 4 6 4 6 4 6 4 6 4 6 4 6 4 6 4 6 4 6 4 6 4 6 4 6 4 6 6 4 6 6 4 6 6 6 4 6 | 2009 BC | 2 | 1 | | | | 5 | 4 | | 3 | | 6 |
| 2011 AB 1 4 6 3* 2 5 1 6 2011 BC 4 3* 2 5 1 6 2012 AB 6 3 4 2 1 5 5 1 6 2012 BC 3 14 54 2 46 2013 AB 1 2 4 5 3 6 3 2 46 2013 BC 1 4 3 5 2 6 2014 AB 1 3 2 45 6 4 2 6 2015 AB 1 5 2 3 4 6 4 6 6 2015 BC 1 3 5 2 3 4 5 2 6 | 2010 AB | 13 | | 3 5 | - | 4 | 2 | 6 | | | | |
| 2011 BC 4 3* 2 5 1 6 2012 AB 6 3 4 2 1 5 5 1 2012 BC 3 14 54 2 46 2013 AB 1 2 4 5 3 6 2 2013 BC 1 4 3 5 2 6 2014 AB 1 3 2 45 6 4 2 6 2014 BC 1 3 5 4 2 6 2015 AB 1 5 2 3 4 6 6 2015 BC 1 3 4 5 2 6 | 2010 BC | 1 | | | ! ! | 4 | 2 | 5 | | 3 | | 6 |
| 2012 AB 6 3 4 2 1 5 2 4 6 2012 BC 3 1 4 5 4 2 4 6 2013 AB 1 2 4 5 3 6 3 2 4 6 2013 BC 1 4 3 5 2 6 2014 AB 1 3 2 4 5 6 4 4 2014 BC 1 3 5 4 2 6 2015 AB 1 5 2 3 4 6 6 2015 BC 1 3 4 5 2 6 | 2011 AB | | 1 | 4 | 6 | 3* | 2 | 5 | | | | |
| 2012 BC 3 1 4 5 4 2 4 6 2013 AB 1 2 4 5 3 6 6 2013 BC 1 4 3 5 2 6 2014 AB 1 3 2 45 6 4 4 2014 BC 1 3 5 4 2 6 2015 AB 1 5 2 3 4 6 6 2015 BC 1 3 4 5 2 6 | 2011 BC | | | 4 | | 3* | 2 | 5 | | 1 | | 6 |
| 2013 AB 1 2 4 5 3 6 6 2013 BC 1 4 3 5 2 6 2014 AB 1 3 2 45 6 4 <td>2012 AB</td> <td></td> <td>6</td> <td>3</td> <td>4</td> <td>2</td> <td>1</td> <td>5</td> <td></td> <td></td> <td></td> <td></td> | 2012 AB | | 6 | 3 | 4 | 2 | 1 | 5 | | | | |
| 2013 BC 1 4 3 5 2 6 2014 AB 1 3 2 45 6 4 4 2014 BC 1 3 5 4 2 6 2015 AB 1 5 2 3 4 6 2015 BC 1 3 4 5 2 6 | 2012 BC | | | 3 | | | 1 4 | 5 4 | | 2 | | 4 6 |
| 2014 AB 1 3 2 45 6 4 2014 BC 1 3 5 4 2 6 2015 AB 1 5 2 3 4 6 6 2015 BC 1 3 4 5 2 6 | 2013 AB | 1 | 2 | 4 | | 5 | 3 | 6 | | | | |
| 2014 BC 1 3 5 4 2 6 2015 AB 1 5 2 3 4 6 6 2015 BC 1 3 4 5 2 6 | 2013 BC | 1 | | 4 | | | 3 | 5 | | | 2 | 6 |
| 2015 AB 1 5 2 3 4 6 2015 BC 1 3 4 5 2 6 | 2014 AB | 1 | | 3 | ! | 2 | 4 5 | 6 | 4 | | | |
| 2015 BC 1 3 4 5 2 6 | 2014 BC | 1 | | 3 | | 5 | 4 | | | | 2 | 6 |
| | 2015 AB | 1 | | 5 | | 2 | 3 | 4 | 6 | | | |
| Rate Motion Graph A-V Table Dif Eq Misc Vector Polar Series | 2015 BC | 1 | | | | | 3 | 4 | 5 | 2 | | 6 |
| | | Rate | Motion | Gra | ph | A-V | Table | Dif Eq | Misc | Vector | Polar | Series |

^{*} Indicates these were not common questions. 3g = graph stem; 3a = analytic stem.

AB AND BC MULTIPLE-CHOICE BY TYPE

| Туре | 2013 AB | 2013 BC | 2014 AB | 2014BC | 2015 AB | 2015 BC |
|---|--|--|--|--------------------------------------|---|--|
| 1.Rate/Accumulation | 81 | 13, 27, 81 | 12, 81, 85 | 81, 89 | 78 | 78, |
| 2.Linear motion | 8, 10, 80, 85 | 91 | 14, 27, 76, 85, 90 | 86, 88, 90, | 26, 83, | |
| 3. Graph analysis (Graph stem or analytic stem) | 5, 8, 11, 19, 21, 24, 28, 76, 79, 80, 82, 84, 87, 88, 92 | 6, 13, 18, 20, 24, 76, 79, 84, 85, 91 | 5, 9, 11, 15, 19, 22, 24, 78, 82, 84, 86, 87, 88 | 5, 9, 19, 76, 80,82, 88, 91 | 9, 14, 19, 20, 22, 23, 80, 82, 85, 86, 87, 88, 92 | 1, 14, 22, 26, 77, 80, 85, 87, 88, 92 |
| 4.Area /volume | 89 | 78, 89 | 79, 89 | 16, 78, 79, | 21, 81 | 81, 84 |
| 5.Table & Riemann Sum | 15, 83, 86 | 77, 83, 86 | 12,, 80, 91, 92 | 12, 21, 86. 92 | 4, 27, 77, 79, | 4, 86, 92 |
| 6. Diff Equation | 25, 81, 90 | 7, 9, 21, 25, 81 | 18, 28 | 23, 77, 83, | 8, 18, 24, | 9, 13, 18, 24, |
| 7.Other: Implicit, RR, families, roc, avg, theorems, et al. | 18, 22, 77, 92 | 4, 21, 22, 28, 80, 85 | 21, 25, | 13, 15, 84 | 12, 13, 16, 17, 28, 76 , 90, 92 | 2, 5, 21, 27, 76, 82, 90, 91 |
| 8. Parametric | | 8, 28, 87 | | 85 | | 8, 17 |
| 9.Polar | | 88 | | 16, 25 | | 15, |
| 10. Sequences and Series | | 3, 11, 15, 19, 23, 26, 82, 90 | | 6, 10, 14, 17, 22, 24, 27, 87, | | 10, 16, 19, 20, 28, 79, 83, 89, |
| 11. Limits & Continuity | 1, 12, 84 | 12, 14, 77 | 5, 7, 10, 16, 20 | 3, 5, 7, 11, | 5, 11, 15, 89 | 12, 25 |
| 12. Compute Derivative (Inverse) | 2, 4, 7, 14, 15, 16, 17, 19, 20, <u>23</u> | 1, 4, 5, 17, 18, 28 | 2, 3, 13, 17, 20, 23, 25, 26, <u>92</u> | 2, 20, 26, <u>28</u> , 80 | 2, 7, 10, 13, 25, 79, | 2, 7, 17, 23, 25, |
| 13. Compute Integral | 3, 6, 13, 21, 23, 26, 27, 78, 91 | 2, 6, 10, 13, 16, 27, 92 | 1, 4, 6, 8, 77, 83 | 1, 4, 8, 18, 89, 92 | 1, 2, 6, 84, 91 | 3, 6, 11, 21, 86 |

| Туре | | 2003 AB | 2003 BC | 2008 AB | 2008 BC | 2012 AB | 2012 BC |
|------|---|---|----------------------------------|---|--|---|---|
| 1. | Rate/Accumulation | 82, 84 | 80, 82, 87 | 81 | 77 | 8, 81, 89 | 8, |
| 2. | Linear motion | 25, 76, 83, 91 | 87, 91 | 7, 82, 87 | 85, 87 | 6, 16, 28, 79, 83, 89 | 2, 89 |
| 3. | Graph analysis (Graph stem or analytic stem) | 3, 7, 10, 13, 15, 17, 19, 20, 21, 22, 24, 28, 77, 81, 87, 88, 89, 92 | 13, 18, 19, 76, 86, 88, 90 | 6, 9, 10, 11, 17, 18, 20, 21, 24, 25, 80, 84 | 6, 9, 21, 25, 76, 78, 80, 91, 92 | 2, 5, 15, 17, 21, 22, 24, 26, 76, 78, 80, 83, 82, 84, 85, 87 | 3, 11, 15, 12, 18, 21, 76, 78, 80, 81, 84, 88, 89 |
| 4. | Area /volume | 86 | 89 | 83 | 11, 83 | 10, 92, | 87 |
| 5. | Table & Riemann Sum | 18, 85, 90 | 25, 79, 83, 85 | 10, 14, 85, 86, 90 | 8, 14, 22, 88, 90 | 8, 86, 91, | 8, 81, 86 |
| 6. | Diff Equation | 12, 19 | 5, 12, 14, 21 | 22, 23, 27 | 7, 24, 27, 86 | 23, 25 | 14, 16, 23, |
| 7. | Other: Implicit, RR, families, roc, avg, theorems, et al. | 78, 80 | 15, 78, 92 | 88, 89, 92 | 6, 10, 89 | 27, 77, 88 | 4, 7, 11, 12, 77, 82, 85, 92 |
| 8. | Parametric | | 4, 7, 17, 84 | | 1, 5, 28 | | 2 |
| 9. | Polar | | | | 26 | | 26, 91 |
| 10. | Sequences and Series | | 10, 11, 20, 22, 24, 28, 77 | | 4, 12, 16, 20, 23, 79, 82, 84 | | 5, 9, 13, 17, 22, 27, 79, 90, |
| 11. | Limits & Continuity | 3, 6, 79 | 2, 81 | 1, 5, 19 | 3, 78 | 5, 9, 11, 21, 77 | 21, 25, 28, 83, |
| 12. | Compute Derivative (inverse) | 1, 4, 9, 14, 16, 23, 26, <u>27</u> | 1, 9, 16, 27, 79 | 3, 8, 12, 13, 16, 18, 26, <u>28</u> | 2, 10, 15, 17, 18, 90, 92 | 1, 4, 7, 14, 18, 19, <u>20,</u> 78 | 1, 7, 17, 19 |
| 13. | Compute Integral | 2, 5, 8, 11, 22 | 3, 6, 8, 23, 26 | 2, 4, 15, 79, 81, 85, 91 | 13, 19, 22, 81 | 3, 12, 13, 17, 90 | 3, 6, 10, 16, 18, 20, 24, 25 |

Note: Some questions listed under more than one type.

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