

CHEMISTRY 3331  
FIRST EXAM  
Dr. Olafs Daugulis  
19 February, 2016

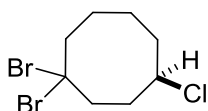
Name \_\_\_\_\_  
(print, **legibly**)      Last      First

Last 4 digits of student Nr.: \_\_\_\_\_

SEAT Nr: \_\_\_\_\_

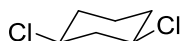
Please **read all directions carefully**. Write all answers legibly in the appropriate spaces and **THINK** about what you are doing. Give only **ONE** answer for each question (100 pts total).

1. (16 pts) Give a complete and acceptable name for each of the molecules shown below. Be sure to indicate stereochemistry where this is pertinent.



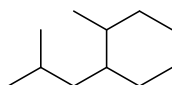
1,1-dibromo-4-chlorocyclooctane

---



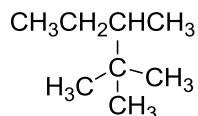
cis-1,3-dichlorocyclohexane

---



4-ethyl-2,5-dimethylheptane

---

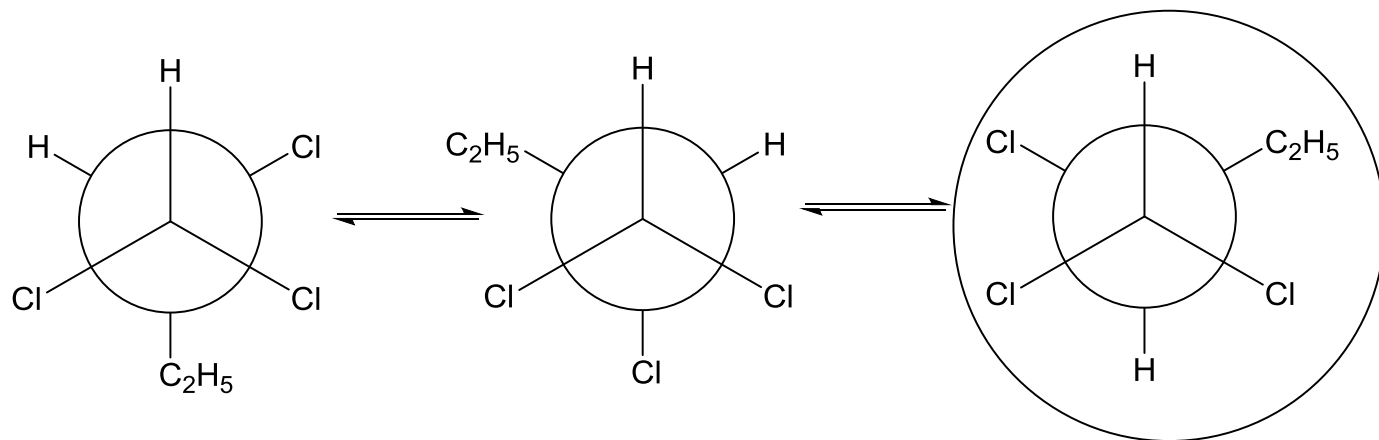


2,2,3-trimethylpentane

---

4 pts each answer

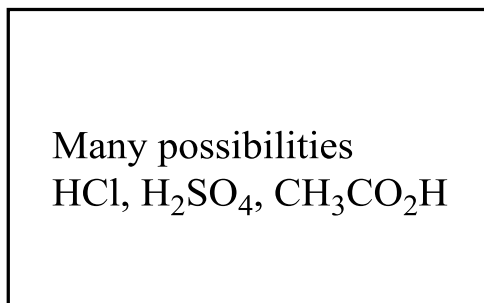
2. (12 pts) Looking down the C1-C2 bond, draw Newman projections for all three staggered conformations of 1,1,2-trichlorobutane. Draw a circle around the most stable conformation.



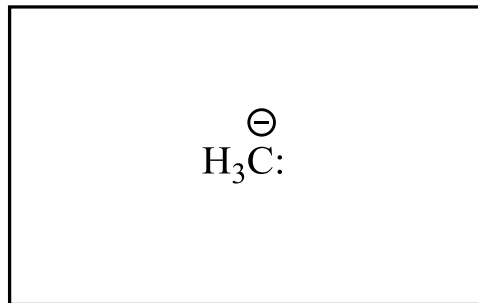
3 pts each structure, 3 pts circling

3. (12 pts) In the box, draw the Lewis structure of:

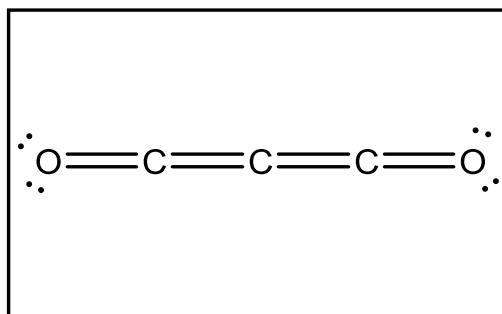
(a) An acid stronger than water



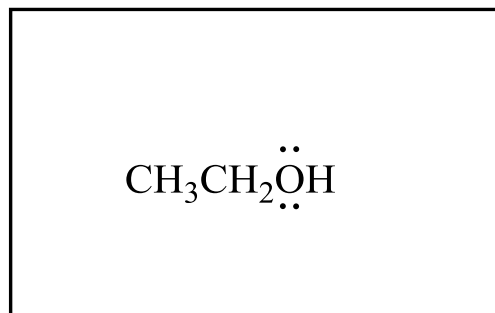
(b) Conjugate base of methane



(c) A non-cyclic Lewis structure of C<sub>3</sub>O<sub>2</sub>

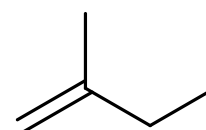
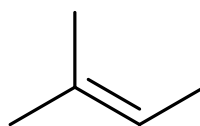
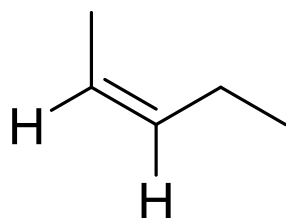
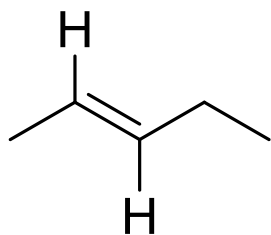
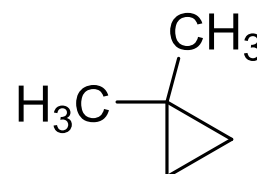
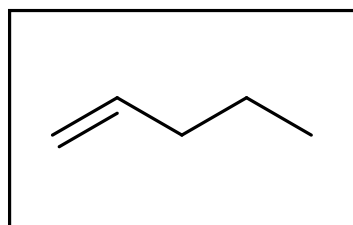
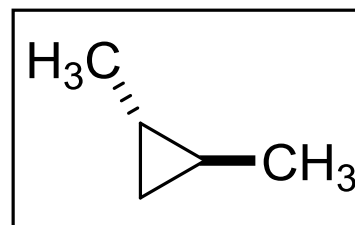
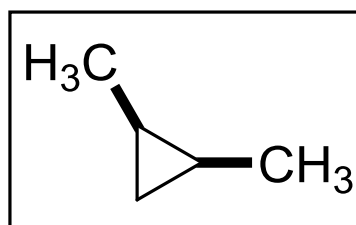
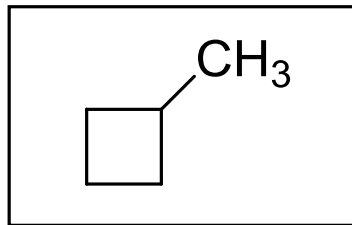
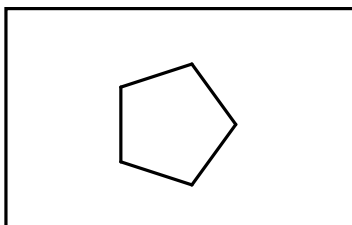


(d) Isomer of C<sub>2</sub>H<sub>6</sub>O that can hydrogen-bond to another molecule of itself



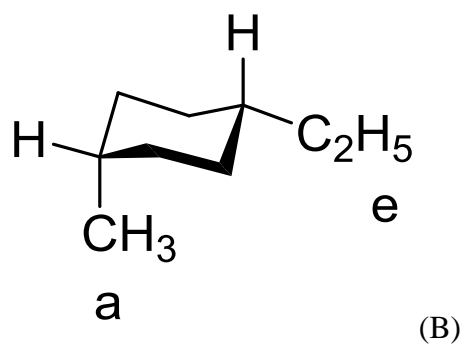
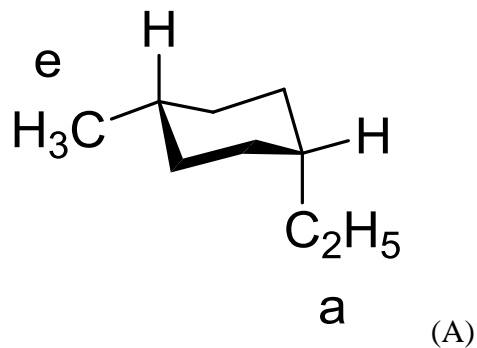
3 pts each structure

4. (15 pts) There exist at least 9 isomers with formula  $C_5H_{10}$ . Draw five of those isomers in the boxes provided. Points off for duplicate structures. One structure per box.



3 pts each structure

5. (12 pts) Draw two chair conformations of cis-1-ethyl-4-methylcyclohexane in the boxes provided. Mark methyl and ethyl substituents in both conformations as axial (a) or equatorial (e).



Is (1) conformation A lower in energy (more stable),

**(2) conformation B lower in energy.**

(3) both conformations have equal energy (are equally stable).

Circle (1), (2), or (3).

3 pts each structure

1 pt each a, e marking

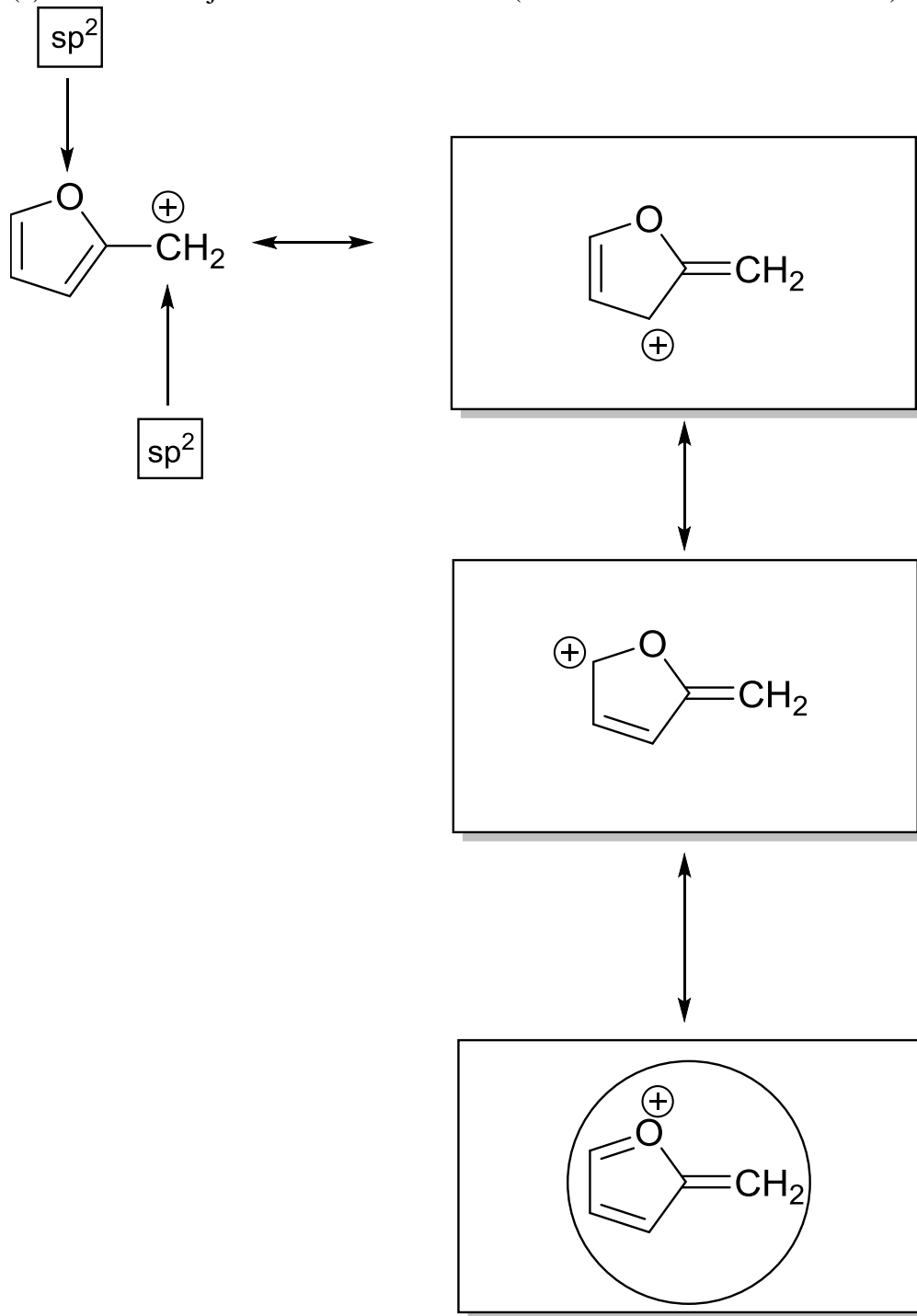
2 pts circling

6. (18 pts) For the molecule below,

(a) draw three additional important resonance structures in the large boxes below.

(b) determine the hybridization of the two indicated atoms and place the answers in the boxes provided. Hint – consider other resonance structures!

(c) Circle the major resonance contributor (most stable resonance structure). **Homework 2-23a!**

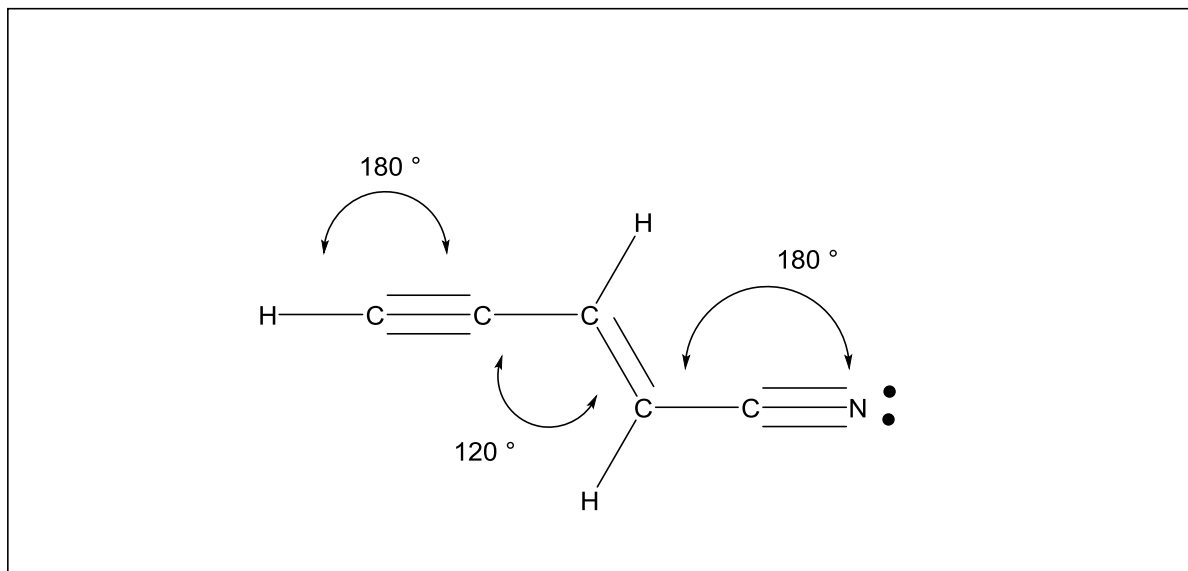


octet around all atoms

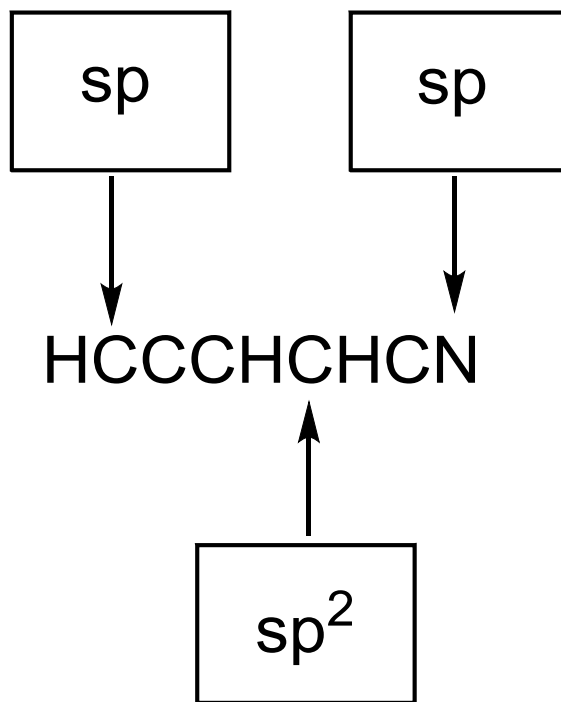
3 pts each structure, 3 pts circling, 3 pts each hybridization

7. (15 pts) For the following compound shown in 7b,

(a) Draw a geometrically correct line-angle structure for trans isomer of this compound in the box provided, placing as many atoms as possible in the plane of paper. Do not sketch orbitals, indicate all electron lone pairs, and pay attention to bond angles.



(b) write the state of hybridization for each of the three indicated atoms.



2 pts each hybridization, 9 pts structure

**END OF EXAM – NOTHING BELOW THIS WILL BE GRADED**

## The Periodic Table of the Elements

1 <b>H</b> Hydrogen 1.00794	2 <b>He</b> Helium 4.003	3 <b>Li</b> Lithium 6.941	4 <b>Be</b> Beryllium 9.012182	5 <b>B</b> Boron 10.811	6 <b>C</b> Carbon 12.0107	7 <b>N</b> Nitrogen 14.00674	8 <b>O</b> Oxygen 15.9994	9 <b>F</b> Fluorine 18.9984032	10 <b>Ne</b> Neon 20.1797	11 <b>Na</b> Sodium 22.989770	12 <b>Mg</b> Magnesium 24.3050	13 <b>Al</b> Aluminum 26.981538	14 <b>Si</b> Silicon 28.0855	15 <b>P</b> Phosphorus 30.973761	16 <b>S</b> Sulfur 32.066	17 <b>Cl</b> Chlorine 35.4527	18 <b>Ar</b> Argon 39.948	19 <b>K</b> Potassium 39.0983	20 <b>Ca</b> Calcium 40.078	21 <b>Sc</b> Scandium 44.955910	22 <b>Ti</b> Titanium 47.867	23 <b>V</b> Vanadium 50.9415	24 <b>Cr</b> Chromium 51.9961	25 <b>Mn</b> Manganese 54.938049	26 <b>Fe</b> Iron 55.845	27 <b>Co</b> Cobalt 58.933200	28 <b>Ni</b> Nickel 58.6934	29 <b>Cu</b> Copper 63.546	30 <b>Zn</b> Zinc 65.39	31 <b>Ga</b> Gallium 69.723	32 <b>Ge</b> Germanium 72.61	33 <b>As</b> Arsenic 74.92160	34 <b>Se</b> Selenium 78.96	35 <b>Br</b> Bromine 79.904	36 <b>Kr</b> Krypton 83.80	37 <b>Rb</b> Rubidium 85.4678	38 <b>Sr</b> Strontium 87.62	39 <b>Y</b> Yttrium 88.90585	40 <b>Zr</b> Zirconium 91.224	41 <b>Nb</b> Niobium 92.90638	42 <b>Mo</b> Molybdenum 95.94	43 <b>Tc</b> Technetium (98)	44 <b>Ru</b> Ruthenium 101.07	45 <b>Rh</b> Rhodium 102.90550	46 <b>Pd</b> Palladium 106.42	47 <b>Ag</b> Silver 107.8682	48 <b>Cd</b> Cadmium 112.411	49 <b>In</b> Indium 114.818	50 <b>Sn</b> Tin 118.710	51 <b>Sb</b> Antimony 121.760	52 <b>Te</b> Tellurium 127.60	53 <b>I</b> Iodine 126.90447	54 <b>Xe</b> Xenon 131.29	55 <b>Cs</b> Cesium 132.90545	56 <b>Ba</b> Barium 137.327	57 <b>La</b> Lanthanum 138.9055	58 <b>Ce</b> Cerium 140.116	59 <b>Pr</b> Praseodymium 140.90765	60 <b>Nd</b> Neodymium 144.24	61 <b>Pm</b> Promethium (145)	62 <b>Sm</b> Samarium 150.36	63 <b>Eu</b> Europium 151.964	64 <b>Gd</b> Gadolinium 157.25	65 <b>Tb</b> Terbium 158.92534	66 <b>Dy</b> Dysprosium 162.50	67 <b>Ho</b> Holmium 164.93032	68 <b>Er</b> Erbium 167.26	69 <b>Tm</b> Thulium 168.93421	70 <b>Yb</b> Ytterbium 173.04	71 <b>Lu</b> Lutetium 174.967	87 <b>Fr</b> Francium (223)	88 <b>Ra</b> Radium (226)	89 <b>Ac</b> Actinium (227)	104 <b>Rf</b> Rutherfordium (261)	105 <b>Db</b> Dubnium (262)	106 <b>Sg</b> Seaborgium (263)	107 <b>Bh</b> Bohrium (262)	108 <b>Hs</b> Hassium (265)	109 <b>Mt</b> Meitnerium (266)	110 <b>Ds</b> Darmstadtium (269)	111 <b>Rg</b> Roentgenium (272)	112 <b>Cn</b> Copernicium (277)	113 <b>Nh</b> Nihonium (283)	114 <b>Fl</b> Flerovium (284)	115 <b>Mc</b> Moscovium (285)	116 <b>Lv</b> Livermorium (286)	117 <b>Ts</b> Tennessine (287)	118 <b>Og</b> Oganesson (288)	119 <b>Uue</b> Ununennium (289)	120 <b>Uub</b> Unbibium (290)	121 <b>Uut</b> Untrium (291)	122 <b>Uuq</b> Unquadium (292)	123 <b>Uuq</b> Unquadium (293)	124 <b>Uuq</b> Unquadium (294)	125 <b>Uuq</b> Unquadium (295)	126 <b>Uuq</b> Unquadium (296)	127 <b>Uuq</b> Unquadium (297)	128 <b>Uuq</b> Unquadium (298)	129 <b>Uuq</b> Unquadium (299)	130 <b>Uuq</b> Unquadium (300)	131 <b>Uuq</b> Unquadium (301)	132 <b>Uuq</b> Unquadium (302)	133 <b>Uuq</b> Unquadium (303)	134 <b>Uuq</b> Unquadium (304)	135 <b>Uuq</b> Unquadium (305)	136 <b>Uuq</b> Unquadium (306)	137 <b>Uuq</b> Unquadium (307)	138 <b>Uuq</b> Unquadium (308)	139 <b>Uuq</b> Unquadium (309)	140 <b>Uuq</b> Unquadium (310)	141 <b>Uuq</b> Unquadium (311)	142 <b>Uuq</b> Unquadium (312)	143 <b>Uuq</b> Unquadium (313)	144 <b>Uuq</b> Unquadium (314)	145 <b>Uuq</b> Unquadium (315)	146 <b>Uuq</b> Unquadium (316)	147 <b>Uuq</b> Unquadium (317)	148 <b>Uuq</b> Unquadium (318)	149 <b>Uuq</b> Unquadium (319)	150 <b>Uuq</b> Unquadium (320)	151 <b>Uuq</b> Unquadium (321)	152 <b>Uuq</b> Unquadium (322)	153 <b>Uuq</b> Unquadium (323)	154 <b>Uuq</b> Unquadium (324)	155 <b>Uuq</b> Unquadium (325)	156 <b>Uuq</b> Unquadium (326)	157 <b>Uuq</b> Unquadium (327)	158 <b>Uuq</b> Unquadium (328)	159 <b>Uuq</b> Unquadium (329)	160 <b>Uuq</b> Unquadium (330)	161 <b>Uuq</b> Unquadium (331)	162 <b>Uuq</b> Unquadium (332)	163 <b>Uuq</b> Unquadium (333)	164 <b>Uuq</b> Unquadium (334)	165 <b>Uuq</b> Unquadium (335)	166 <b>Uuq</b> Unquadium (336)	167 <b>Uuq</b> Unquadium (337)	168 <b>Uuq</b> Unquadium (338)	169 <b>Uuq</b> Unquadium (339)	170 <b>Uuq</b> Unquadium (340)	171 <b>Uuq</b> Unquadium (341)	172 <b>Uuq</b> Unquadium (342)	173 <b>Uuq</b> Unquadium (343)	174 <b>Uuq</b> Unquadium (344)	175 <b>Uuq</b> Unquadium (345)	176 <b>Uuq</b> Unquadium (346)	177 <b>Uuq</b> Unquadium (347)	178 <b>Uuq</b> Unquadium (348)	179 <b>Uuq</b> Unquadium (349)	180 <b>Uuq</b> Unquadium (350)	181 <b>Uuq</b> Unquadium (351)	182 <b>Uuq</b> Unquadium (352)	183 <b>Uuq</b> Unquadium (353)	184 <b>Uuq</b> Unquadium (354)	185 <b>Uuq</b> Unquadium (355)	186 <b>Uuq</b> Unquadium (356)	187 <b>Uuq</b> Unquadium (357)	188 <b>Uuq</b> Unquadium (358)	189 <b>Uuq</b> Unquadium (359)	190 <b>Uuq</b> Unquadium (360)	191 <b>Uuq</b> Unquadium (361)	192 <b>Uuq</b> Unquadium (362)	193 <b>Uuq</b> Unquadium (363)	194 <b>Uuq</b> Unquadium (364)	195 <b>Uuq</b> Unquadium (365)	196 <b>Uuq</b> Unquadium (366)	197 <b>Uuq</b> Unquadium (367)	198 <b>Uuq</b> Unquadium (368)	199 <b>Uuq</b> Unquadium (369)	200 <b>Uuq</b> Unquadium (370)	201 <b>Uuq</b> Unquadium (371)	202 <b>Uuq</b> Unquadium (372)	203 <b>Uuq</b> Unquadium (373)	204 <b>Uuq</b> Unquadium (374)	205 <b>Uuq</b> Unquadium (375)	206 <b>Uuq</b> Unquadium (376)	207 <b>Uuq</b> Unquadium (377)	208 <b>Uuq</b> Unquadium (378)	209 <b>Uuq</b> Unquadium (379)	210 <b>Uuq</b> Unquadium (380)	211 <b>Uuq</b> Unquadium (381)	212 <b>Uuq</b> Unquadium (382)	213 <b>Uuq</b> Unquadium (383)	214 <b>Uuq</b> Unquadium (384)	215 <b>Uuq</b> Unquadium (385)	216 <b>Uuq</b> Unquadium (386)	217 <b>Uuq</b> Unquadium (387)	218 <b>Uuq</b> Unquadium (388)	219 <b>Uuq</b> Unquadium (389)	220 <b>Uuq</b> Unquadium (390)	221 <b>Uuq</b> Unquadium (391)	222 <b>Uuq</b> Unquadium (392)	223 <b>Uuq</b> Unquadium (393)	224 <b>Uuq</b> Unquadium (394)	225 <b>Uuq</b> Unquadium (395)	226 <b>Uuq</b> Unquadium (396)	227 <b>Uuq</b> Unquadium (397)	228 <b>Uuq</b> Unquadium (398)	229 <b>Uuq</b> Unquadium (399)	230 <b>Uuq</b> Unquadium (400)	231 <b>Uuq</b> Unquadium (401)	232 <b>Uuq</b> Unquadium (402)	233 <b>Uuq</b> Unquadium (403)	234 <b>Uuq</b> Unquadium (404)	235 <b>Uuq</b> Unquadium (405)	236 <b>Uuq</b> Unquadium (406)	237 <b>Uuq</b> Unquadium (407)	238 <b>Uuq</b> Unquadium (408)	239 <b>Uuq</b> Unquadium (409)	240 <b>Uuq</b> Unquadium (410)	241 <b>Uuq</b> Unquadium (411)	242 <b>Uuq</b> Unquadium (412)	243 <b>Uuq</b> Unquadium (413)	244 <b>Uuq</b> Unquadium (414)	245 <b>Uuq</b> Unquadium (415)	246 <b>Uuq</b> Unquadium (416)	247 <b>Uuq</b> Unquadium (417)	248 <b>Uuq</b> Unquadium (418)	249 <b>Uuq</b> Unquadium (419)	250 <b>Uuq</b> Unquadium (420)	251 <b>Uuq</b> Unquadium (421)	252 <b>Uuq</b> Unquadium (422)	253 <b>Uuq</b> Unquadium (423)	254 <b>Uuq</b> Unquadium (424)	255 <b>Uuq</b> Unquadium (425)	256 <b>Uuq</b> Unquadium (426)	257 <b>Uuq</b> Unquadium (427)	258 <b>Uuq</b> Unquadium (428)	259 <b>Uuq</b> Unquadium (429)	260 <b>Uuq</b> Unquadium (430)	261 <b>Uuq</b> Unquadium (431)	262 <b>Uuq</b> Unquadium (432)	263 <b>Uuq</b> Unquadium (433)	264 <b>Uuq</b> Unquadium (434)	265 <b>Uuq</b> Unquadium (435)	266 <b>Uuq</b> Unquadium (436)	267 <b>Uuq</b> Unquadium (437)	268 <b>Uuq</b> Unquadium (438)	269 <b>Uuq</b> Unquadium (439)	270 <b>Uuq</b> Unquadium (440)	271 <b>Uuq</b> Unquadium (441)	272 <b>Uuq</b> Unquadium (442)	273 <b>Uuq</b> Unquadium (443)	274 <b>Uuq</b> Unquadium (444)	275 <b>Uuq</b> Unquadium (445)	276 <b>Uuq</b> Unquadium (446)	277 <b>Uuq</b> Unquadium (447)	278 <b>Uuq</b> Unquadium (448)	279 <b>Uuq</b> Unquadium (449)	280 <b>Uuq</b> Unquadium (450)	281 <b>Uuq</b> Unquadium (451)	282 <b>Uuq</b> Unquadium (452)	283 <b>Uuq</b> Unquadium (453)	284 <b>Uuq</b> Unquadium (454)	285 <b>Uuq</b> Unquadium (455)	286 <b>Uuq</b> Unquadium (456)	287 <b>Uuq</b> Unquadium (457)	288 <b>Uuq</b> Unquadium (458)	289 <b>Uuq</b> Unquadium (459)	290 <b>Uuq</b> Unquadium (460)	291 <b>Uuq</b> Unquadium (461)	292 <b>Uuq</b> Unquadium (462)	293 <b>Uuq</b> Unquadium (463)	294 <b>Uuq</b> Unquadium (464)	295 <b>Uuq</b> Unquadium (465)	296 <b>Uuq</b> Unquadium (466)	297 <b>Uuq</b> Unquadium (467)	298 <b>Uuq</b> Unquadium (468)	299 <b>Uuq</b> Unquadium (469)	300 <b>Uuq</b> Unquadium (470)	301 <b>Uuq</b> Unquadium (471)	302 <b>Uuq</b> Unquadium (472)	303 <b>Uuq</b> Unquadium (473)	304 <b>Uuq</b> Unquadium (474)	305 <b>Uuq</b> Unquadium (475)	306 <b>Uuq</b> Unquadium (476)	307 <b>Uuq</b> Unquadium (477)	308 <b>Uuq</b> Unquadium (478)	309 <b>Uuq</b> Unquadium (479)	310 <b>Uuq</b> Unquadium (480)	311 <b>Uuq</b> Unquadium (481)	312 <b>Uuq</b> Unquadium (482)	313 <b>Uuq</b> Unquadium (483)	314 <b>Uuq</b> Unquadium (484)	315 <b>Uuq</b> Unquadium (485)	316 <b>Uuq</b> Unquadium (486)	317 <b>Uuq</b> Unquadium (487)	318 <b>Uuq</b> Unquadium (488)	319 <b>Uuq</b> Unquadium (489)	320 <b>Uuq</b> Unquadium (490)	321 <b>Uuq</b> Unquadium (491)	322 <b>Uuq</b> Unquadium (492)	323 <b>Uuq</b> Unquadium (493)	324 <b>Uuq</b> Unquadium (494)	325 <b>Uuq</b> Unquadium (495)	326 <b>Uuq</b> Unquadium (496)	327 <b>Uuq</b> Unquadium (497)	328 <b>Uuq</b> Unquadium (498)	329 <b>Uuq</b> Unquadium (499)	330 <b>Uuq</b> Unquadium (500)	331 <b>Uuq</b> Unquadium (501)	332 <b>Uuq</b> Unquadium (502)	333 <b>Uuq</b> Unquadium (503)	334 <b>Uuq</b> Unquadium (504)	335 <b>Uuq</b> Unquadium (505)	336 <b>Uuq</b> Unquadium (506)	337 <b>Uuq</b> Unquadium (507)	338 <b>Uuq</b> Unquadium (508)	339 <b>Uuq</b> Unquadium (509)	340 <b>Uuq</b> Unquadium (510)	341 <b>Uuq</b> Unquadium (511)	342 <b>Uuq</b> Unquadium (512)	343 <b>Uuq</b> Unquadium (513)	344 <b>Uuq</b> Unquadium (514)	345 <b>Uuq</b> Unquadium (515)	346 <b>Uuq</b> Unquadium (516)	347 <b>Uuq</b> Unquadium (517)	348 <b>Uuq</b> Unquadium (518)	349 <b>Uuq</b> Unquadium (519)	350 <b>Uuq</b> Unquadium (520)	351 <b>Uuq</b> Unquadium (521)	352 <b>Uuq</b> Unquadium (522)	353 <b>Uuq</b> Unquadium (523)	354 <b>Uuq</b> Unquadium (524)	355 <b>Uuq</b> Unquadium (525)	356 <b>Uuq</b> Unquadium (526)	357 <b>Uuq</b> Unquadium (527)	358 <b>Uuq</b> Unquadium (528)	359 <b>Uuq</b> Unquadium (529)	360 <b>Uuq</b> Unquadium (530)	361 <b>Uuq</b> Unquadium (531)	362 <b>Uuq</b> Unquadium (532)	363 <b>Uuq</b> Unquadium (533)	364 <b>Uuq</b> Unquadium (534)	365 <b>Uuq</b> Unquadium (535)	366 <b>Uuq</b> Unquadium (536)	367 <b>Uuq</b> Unquadium (537)	368 <b>Uuq</b> Unquadium (538)	369 <b>Uuq</b> Unquadium (539)	370 <b>Uuq</b> Unquadium (540)	371 <b>Uuq</b> Unquadium (541)	372 <b>Uuq</b> Unquadium (542)	373 <b>Uuq</b> Unquadium (543)	374 <b>Uuq</b> Unquadium (544)	375 <b>Uuq</b> Unquadium (545)	376 <b>Uuq</b> Unquadium (546)	377 <b>Uuq</b> Unquadium (547)	378 <b>Uuq</b> Unquadium (548)	379 <b>Uuq</b> Unquadium (549)	380 <b>Uuq</b> Unquadium (550)	381 <b>Uuq</b> Unquadium (551)	382 <b>Uuq</b> Unquadium (552)	383 <b>Uuq</b> Unquadium (553)	384 <b>Uuq</b> Unquadium (554)	385 <b>Uuq</b> Unquadium (555)	386 <b>Uuq</b> Unquadium (556)	387 <b>Uuq</b> Unquadium (557)	388 <b>Uuq</b> Unquadium (558)	389 <b>Uuq</b> Unquadium (559)	390 <b>Uuq</b> Unquadium (560)	391 <b>Uuq</b> Unquadium (561)	392 <b>Uuq</b> Unquadium (562)	393 <b>Uuq</b> Unquadium (563)	394 <b>Uuq</b> Unquadium (564)	395 <b>Uuq</b> Unquadium (565)	396 <b>Uuq</b> Unquadium (566)	397 <b>Uuq</b> Unquadium (567)	398 <b>Uuq</b> Unquadium (568)	399 <b>Uuq</b> Unquadium (569)	400 <b>Uuq</b> Unquadium (570)	401 <b>Uuq</b> Unquadium (571)	402 <b>Uuq</b> Unquadium (572)	403 <b>Uuq</b> Unquadium (573)	404 <b>Uuq</b> Unquadium (574)	405 <b>Uuq</b> Unquadium (575)	406 <b>Uuq</b> Unquadium (576)	407 <b>Uuq</b> Unquadium (577)	408 <b>Uuq</b> Unquadium (578)	409 <b>Uuq</b> Unquadium (579)	410 <b>Uuq</b> Unquadium (580)	411 <b>Uuq</b> Unquadium (581)	412 <b>Uuq</b> Unquadium (582)	413 <b>Uuq</b> Unquadium (583)	414 <b>Uuq</b> Unquadium (584)	415 <b>Uuq</b> Unquadium (585)	416 <b>Uuq</b> Unquadium (586)	417 <b>Uuq</b> Unquadium (587)	418 <b>Uuq</b> Unquadium (588)	419 <b>Uuq</b> Unquadium (589)	420 <b>Uuq</b> Unquadium (590)	421 <b>Uuq</b> Unquadium (591)	422 <b>Uuq</b> Unquadium (592)	423 <b>Uuq</b> Unquadium (593)	424 <b>Uuq</b> Unquadium (594)	425 <b>Uuq</b> Unquadium (595)	426 <b>Uuq</b> Unquadium (596)	427 <b>Uuq</b> Unquadium (597)	428 <b>Uuq</b> Unquadium (598)	429 <b>Uuq</b> Unquadium (599)	430 <b>Uuq</b> Unquadium (600)	431 <b>Uuq</b> Unquadium (601)	432 <b>Uuq</b> Unquadium (602)	433 <b>Uuq</b> Unquadium (603)	434 <b>Uuq</b> Unquadium (604)	435 <b>Uuq</b> Unquadium (605)	436 <b>Uuq</b> Unquadium (606)	437 <b>Uuq</b> Unquadium (607)	438 <b>Uuq</b> Unquadium (608)	439 <b>Uuq</b> Unquadium (609)	440 <b>Uuq</b> Unquadium (610)	441 <b>Uuq</b> Unquadium (611)	442 <b>Uuq</b> Unquadium
--------------------------------------	-----------------------------------	------------------------------------	---	----------------------------------	------------------------------------	---------------------------------------	------------------------------------	---	------------------------------------	--	---	--	---------------------------------------	---	------------------------------------	--	------------------------------------	--	--------------------------------------	--	---------------------------------------	---------------------------------------	--	---	-----------------------------------	--	--------------------------------------	-------------------------------------	----------------------------------	--------------------------------------	---------------------------------------	--	--------------------------------------	--------------------------------------	-------------------------------------	--	---------------------------------------	---------------------------------------	--	--	--	---------------------------------------	--	---	--	---------------------------------------	---------------------------------------	--------------------------------------	-----------------------------------	--	--	---------------------------------------	------------------------------------	--	--------------------------------------	--	--------------------------------------	--	--	--	---------------------------------------	--	---	---	---	---	-------------------------------------	---	--	--	--------------------------------------	------------------------------------	--------------------------------------	--	--------------------------------------	---	--------------------------------------	--------------------------------------	---	---	--	--	---------------------------------------	--	--	--	---	--	--	--	---------------------------------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--------------------------------



