

問 1: 1 点 $\times$ 41 = 41 点

(1)	1	(2)	0	(3)	0	(4)	0	(5)	0.9175
(6)	-0.3978	(7)	0	(8)	0.3978	(9)	0.9175	(10)	1
(11)	0	(12)	0	(13)	0	(14)	0.9175	(15)	0.3978
(16)	0	(17)	-0.3978	(18)	0.9175	(19)	1	(20)	0
(21)	0	(22)	0	(23)	0.9175	(24)	-0.3978	(25)	0
(26)	0.3978	(27)	0.9175	(28)	0	(29)	-0.3978	(30)	0.9175
(31)	0	(32)	0.3978	(33)	-0.9175	(34)	270°	(35)	66.°6
(36)	90°	(37)	-66.°6	(38)	96.°4	(39)	29.°8	(40)	276.°4
(41)	-29.°8								

問 2: 6 点 $\times$ 2 = 12 点

(42)	90°	(43)	156.°6	(44)	180°	(45)	90°	(46)	0°
(47)	270°								

問 3: 2 点 $\times$ 12 = 24 点

(48)	$c^2 dt^2 - dx^2 - dy^2 - dz^2$	(49)	$1/\sqrt{1 - (v/c)^2}$
(50)	18.4	(51)	7.09
(52)	γ	(53)	$\gamma i \beta$
(54)	$-\gamma i \beta$	(55)	γ
(56)	$\frac{u-v}{1-uv/c^2}$	(57)	$u - v$
(58)	c	(59)	0.99995

問 4: 3 点 $\times$ 8 = 24 点

(60)	$2GM/c^2$	(61)	3	(62)	9
(63)	$\sqrt{1 - \frac{2GM/c^2}{r}}$	(64)	$\phi \rightarrow \zeta$		
(65)	$\sqrt{1 - \frac{2GM/c^2}{r}}$	(66)	低い	(67)	速く

問 5: 2 点 $\times$ 14 = 28 点

(68)	GMm/a^2	(69)	mv^2/a
(70)	$2\pi a/v$	(71)	$\sqrt{4\pi^2 a^3/GM}$
(72)	3	(73)	1.47
(74)	42400	(75)	36010
(76)	$l/(1 + e \cos \theta)$	(77)	πab
(78)	$h/2m$	(79)	$2\pi abm/h$
(80)	$\sqrt{al}$	(81)	h^2/GMm^2

問 6: 3 点 $\times$ 7 = 21 点

(82)	10^{38}	(83)	$7R[\text{km}]^{-1/2}(M/M_\odot)^{1/4}$	(84)	2
(85)	0.3	(86)	6×10^{-5}	(87)	低く
(88)	-1/4				