

$$d = 6$$

$$\Phi_{\mathbb{Q}}(6) \supseteq \left\{ \begin{array}{l} (2), (3), (4), (5), (6), (7), (8), (9), (10), (12), (13), (14), (15), (16), (18), (21), (30), (2, 2), (2, 4), (2, 6), \\ (2, 8), (2, 10), (2, 12), (2, 14), (2, 18), (3, 3), (3, 6), (3, 9), (3, 12), (4, 4), (4, 12), (6, 6) \end{array} \right\}$$

$G$	$\Phi_{\mathbb{Q}}(6, G) \setminus \{G\} \supseteq$
()	{(2), (3), (4), (5), (6), (7), (9), (10), (12), (13), (14), (15), (18), (21), (2, 2), (2, 6), (2, 10), (2, 14), (2, 18), (3, 3), (3, 9), (4, 4), (4, 12), (6, 6)}
(2)	{(4), (6), (8), (10), (12), (14), (16), (18), (2, 2), (2, 6), (2, 10), (2, 14), (2, 18), (3, 6), (3, 12), (6, 6)}
(3)	{(6), (9), (12), (15), (21), (30), (2, 6), (3, 3), (3, 6), (3, 9), (4, 12), (6, 6)}
(4)	{(8), (12), (2, 4), (2, 8), (2, 12), (3, 12), (4, 4)}
(5)	{(10), (15), (30), (2, 10)}
(6)	{(12), (18), (2, 6), (2, 18), (3, 6), (3, 12), (6, 6)}
(7)	{(14), (2, 14)}
(8)	{(16), (2, 8)}
(9)	{(18), (2, 18), (3, 9)}
(10)	{(2, 10)}
(12)	{(2, 12), (3, 12)}
(2, 2)	{(2, 4), (2, 6), (2, 8), (2, 12), (6, 6)}
(2, 4)	{(2, 8), (4, 4)}
(2, 6)	{(2, 12), (6, 6)}
(2, 8)	{}

$$h_{\mathbb{Q}}(6) \geq 9 \quad \#\mathcal{H}_{\mathbb{Q}}(6) \geq 137 \quad N_{\mathbb{Q}}(6) \geq 10816$$

$G$	$\mathcal{H}_{\mathbb{Q}}(6, E)$	Label
()	(2, 2)	392b1
()	(2, 14)	1922c1
()	(2), (2, 2)	11a2
()	(2, 2), (2, 14)	1922e1
()	(4), (4, 4)	648a1
()	(7), (2, 2)	1922c2
()	(2), (5), (2, 10)	121d1
()	(2), (7), (2, 2)	26b2
()	(2), (7), (2, 14)	10816bk1
()	(2), (13), (2, 2)	147b1
()	(3), (6), (6, 6)	108a2
()	(4), (7), (4, 4)	338b1
()	(2), (3) <sup>2</sup> , (2, 6)	484a1
()	(2), (3), (9), (2, 18)	1728e3
()	(2), (4) <sup>2</sup> , (2, 2)	648c1
()	(2), (5), (10), (2, 2)	75a2
()	(2), (7), (14), (2, 2)	208d1
()	(3) <sup>2</sup> , (2, 2), (2, 6)	196a1
()	(3) <sup>2</sup> , (4), (4, 12)	1296h1
()	(2), (3) <sup>2</sup> , (2, 6), (3, 3)	225b2
()	(2), (3) <sup>2</sup> , (6), (2, 2)	50b3
()	(2), (3) <sup>2</sup> , (6), (2, 6)	361b2
()	(2), (3) <sup>2</sup> , (7), (2, 6)	5184u3
()	(2), (3) <sup>2</sup> , (9), (2, 6)	361b1
()	(2), (3) <sup>2</sup> , (21), (2, 6)	5184u1
()	(2), (3), (6) <sup>2</sup> , (2, 2)	300a1
()	(2), (3), (9), (18), (2, 2)	432e3
()	(2), (4) <sup>2</sup> , (7), (2, 2)	338a1
()	(3) <sup>2</sup> , (2, 2), (2, 6), (3, 3)	196b2
()	(3) <sup>2</sup> , (4), (12), (4, 4)	1296h2
()	(2), (3) <sup>2</sup> , (4) <sup>2</sup> , (2, 6)	1296j1
()	(2), (3) <sup>2</sup> , (4), (12), (2, 2)	1296j2
()	(2), (3) <sup>2</sup> , (5), (6), (2, 10)	1600q1
()	(2), (3) <sup>2</sup> , (5), (10), (2, 6)	1600v3
()	(2), (3) <sup>2</sup> , (6), (2, 2), (3, 3)	44a2
()	(2), (3) <sup>2</sup> , (6), (2, 2), (3, 9)	486c2
()	(2), (3) <sup>2</sup> , (6) <sup>2</sup> , (2, 2)	175b2

$G$	$\mathcal{H}_{\mathbb{Q}}(6, E)$	Label
()	(2), (3) <sup>2</sup> , (6), (7), (2, 2)	1296e2
()	(2), (3) <sup>2</sup> , (6), (9), (2, 2)	175b1
()	(2), (3) <sup>2</sup> , (6), (9), (2, 6)	1728e2
()	(2), (3) <sup>2</sup> , (6), (21), (2, 2)	1296e1
()	(2), (3), (9), (18), (2, 2), (3, 9)	54a2
()	(3) <sup>2</sup> , (4), (12), (3, 3), (4, 4)	162d2
()	(2), (3) <sup>2</sup> , (4) <sup>2</sup> , (6), (2, 2)	4050g2
()	(2), (3) <sup>2</sup> , (4), (12), (2, 2), (3, 3)	162a2
()	(2), (3) <sup>2</sup> , (5), (6), (10), (2, 2)	400b1
()	(2), (3) <sup>2</sup> , (6) <sup>2</sup> , (9), (2, 2)	432a1
()	(2), (3) <sup>2</sup> , (6), (7), (2, 2), (3, 3)	162b4
()	(2), (3) <sup>2</sup> , (6), (7), (21), (2, 2)	7938u3
()	(2), (3) <sup>2</sup> , (6), (21), (2, 2), (3, 3)	162c2
()	(2), (3) <sup>2</sup> , (9) <sup>2</sup> , (2, 6), (3, 3)	27a2
()	(2), (3) <sup>2</sup> , (6), (7), (21), (2, 2), (3, 3)	162b2
()	(2), (3) <sup>2</sup> , (6), (9) <sup>2</sup> , (2, 2), (3, 3)	19a2
()	(2), (3) <sup>2</sup> , (5), (6), (10), (15), (2, 2), (3, 3)	50a4
(2)	(2, 2)	46a1
(2)	(2, 10)	450a3
(2)	(2, 2), (2, 14)	49a1
(2)	(6), (2, 6)	80b1
(2)	(10), (2, 2)	150b3
(2)	(14), (2, 2)	49a2
(2)	(4) <sup>2</sup> , (2, 2)	15a5
(2)	(4), (8), (2, 2)	24a6
(2)	(4), (16), (2, 2)	3150bk1
(2)	(6), (2, 2), (2, 6)	80b3
(2)	(6), (2, 6), (2, 18)	98a1
(2)	(6), (2, 6), (6, 6)	36a3
(2)	(6) <sup>2</sup> , (2, 2)	80b2
(2)	(8) <sup>2</sup> , (2, 2)	2880r6
(2)	(14), (2, 2), (2, 14)	49a3
(2)	(4) <sup>2</sup> , (6), (2, 6)	960o7
(2)	(4) <sup>2</sup> , (12), (2, 6)	450g1
(2)	(4), (6), (12), (2, 2)	240b3
(2)	(4), (12), (2, 2), (2, 6)	450g3
(2)	(6) <sup>2</sup> , (18), (2, 2)	98a2

$G$	$\mathcal{H}_{\mathbb{Q}}(6, E)$	Label
(2)	(6), (18), (2, 2), (2, 6)	98a5
(2)	(4) <sup>2</sup> , (6), (2, 2), (2, 6)	960o4
(2)	(4) <sup>2</sup> , (6) <sup>2</sup> , (2, 2)	150c4
(2)	(4) <sup>2</sup> , (6), (12), (2, 2)	240b1
(2)	(6) <sup>2</sup> , (2, 2), (2, 6), (3, 6)	20a3
(2)	(4), (6), (12) <sup>2</sup> , (2, 2), (2, 6), (3, 12)	30a3
(2)	(6) <sup>2</sup> , (18) <sup>2</sup> , (2, 2), (2, 6), (3, 6)	14a3
(2)	(4) <sup>2</sup> , (6) <sup>2</sup> , (12) <sup>2</sup> , (2, 2), (2, 6), (3, 6)	30a7
(3)	(2, 6), (3, 3)	196b1
(3)	(6), (6, 6)	108a1
(3)	(6), (2, 6), (3, 3)	44a1
(3)	(12), (3, 3), (4, 12)	162d1
(3)	(6), (2, 6), (3, 3), (3, 6)	19a1
(3)	(6), (3, 3), (3, 9), (6, 6)	27a1
(3)	(6), (9), (2, 6), (3, 9)	486f1
(3)	(6), (21), (2, 6), (3, 3)	162b1
(3)	(6), (2, 6), (3, 3), (3, 6), (3, 9)	54a1
(3)	(6), (9), (3, 3), (3, 9), (6, 6)	27a3
(3)	(6), (9) <sup>2</sup> , (2, 6), (3, 3)	19a3
(3)	(6), (12) <sup>2</sup> , (2, 6), (3, 3)	162a1
(3)	(6), (15), (30), (2, 6), (3, 3)	50a3
(3)	(6), (9), (2, 6), (3, 3), (3, 6), (3, 9)	54b1
(4)	(2, 4)	17a1
(4)	(2, 8)	192c6
(4)	(4, 4)	40a4
(4)	(12), (2, 12)	150c3
(4)	(8) <sup>2</sup> , (2, 4)	15a7
(4)	(8) <sup>2</sup> , (2, 8)	240d6
(4)	(12), (2, 4), (2, 12)	150c1
(4)	(12) <sup>2</sup> , (2, 4)	720j5
(4)	(12) <sup>2</sup> , (2, 4), (2, 12), (3, 12)	90c1
(5)	(10), (2, 10)	11a1
(5)	(10), (15) <sup>2</sup> , (30), (2, 10)	50b1
(6)	(2, 6), (3, 6)	14a1
(6)	(2, 6), (6, 6)	36a1
(6)	(12) <sup>2</sup> , (2, 6), (3, 6)	30a4
(6)	(12) <sup>2</sup> , (2, 6), (3, 12)	30a1

$G$	$\mathcal{H}_{\mathbb{Q}}(6, E)$	Label
(6)	$(18)^2, (2, 6), (2, 18), (3, 6)$	14a4
(7)	$(14), (2, 14)$	26b1
(8)	$(2, 8)$	15a4
(8)	$(16)^2, (2, 8)$	210e1
(9)	$(18), (2, 18), (3, 9)$	54b3
(10)	$(2, 10)$	66c1
(12)	$(2, 12), (3, 12)$	90c3
(2, 2)	$(2, 4)$	33a1
(2, 2)	$(2, 8)$	63a2
(2, 2)	$(2, 4)^2$	17a2
(2, 2)	$(2, 4), (2, 8)$	75b3
(2, 2)	$(2, 6)^2$	240b2
(2, 2)	$(2, 6), (2, 12)$	960o6
(2, 2)	$(2, 4)^3$	15a2
(2, 2)	$(2, 4)^2, (2, 8)$	510e5
(2, 2)	$(2, 4), (2, 6)^2$	150c2
(2, 2)	$(2, 4), (2, 6), (2, 12)$	960o2
(2, 2)	$(2, 6)^2, (6, 6)$	30a6
(2, 2)	$(2, 4), (2, 6)^2, (2, 12), (6, 6)$	90c2
(2, 4)	$(2, 8)$	15a3
(2, 4)	$(4, 4)$	195a3
(2, 4)	$(2, 8)^2$	1230f2
(2, 4)	$(2, 8), (4, 4)$	15a1
(2, 4)	$(2, 8)^2, (4, 4)$	210e3
(2, 6)	$(6, 6)$	30a2
(2, 6)	$(2, 12), (6, 6)$	90c6