

$$d = 20$$

$$\Phi_{\mathbb{Q}}(20) \supseteq \left\{ \begin{array}{l} (3), (4), (5), (6), (7), (8), (9), (10), (11), (12), (13), (15), (16), (20), (22), (24), (25), (33), \\ (2, 2), (2, 4), (2, 6), (2, 8), (2, 10), (2, 12), (2, 16), (2, 22), (3, 3), (3, 6), (4, 4), (4, 8), (5, 5), (5, 10), (5, 15), (6, 6) \end{array} \right\}$$

G	$\Phi_{\mathbb{Q}}(20, G) \setminus \{G\} \supseteq$
()	{(3), (5), (7), (9), (11), (13), (15), (25), (33), (3, 3), (5, 5), (5, 15)}
(2)	{(4), (6), (8), (10), (12), (16), (20), (22), (24), (2, 2), (2, 4), (2, 6), (2, 8), (2, 10), (2, 12), (2, 16), (2, 22), (3, 6), (4, 4), (4, 8), (5, 10), (6, 6)}
(3)	{(15), (3, 3), (5, 15)}
(4)	{(8), (12), (16), (24), (2, 4), (2, 8), (2, 12), (2, 16), (4, 4), (4, 8)}
(5)	{(15), (25), (5, 5), (5, 15)}
(6)	{(12), (24), (2, 6), (2, 12), (3, 6), (6, 6)}
(7)	{}
(8)	{(16), (2, 8), (2, 16), (4, 8)}
(9)	{}
(10)	{(20), (2, 10), (5, 10)}
(12)	{(24), (2, 12)}
(2, 2)	{(2, 4), (2, 6), (2, 8), (2, 12), (2, 16), (4, 4), (4, 8)}
(2, 4)	{(2, 8), (2, 16), (4, 4), (4, 8)}
(2, 6)	{(2, 12)}
(2, 8)	{(2, 16), (4, 8)}

$$h_{\mathbb{Q}}(20) \geq 9 \quad \#\mathcal{H}_{\mathbb{Q}}(20) \geq 149 \quad N_{\mathbb{Q}}(20) \geq 14400$$

G	$\mathcal{H}_{\mathbb{Q}}(20, E)$	Label
()	(3)	19a2
()	(7)	208d1
()	(9)	54a2
()	(11)	121a1
()	(13)	2890d1
()	(3) ²	1210d1
()	(5) ²	99d2
()	(5), (5, 5)	75a2
()	(3) ² , (3, 3)	175b2
()	(3) ² , (11)	1089e1
()	(5) ² , (5, 5)	38b2
()	(5) ² , (25)	99d1
()	(3) ² , (5) ²	338d1
()	(3) ² , (11), (33)	121b2
()	(3), (5) ² , (15)	400b1
()	(3), (5), (15), (5, 5)	50a4
()	(3), (5), (15) ²	450d2
()	(5), (25) ² , (5, 5)	275b1
()	(3) ² , (11), (33) ²	121b1
()	(3), (5) ² , (15), (5, 5)	50a2
()	(3), (5), (15) ² , (5, 15)	50b3
()	(5) ² , (25) ² , (5, 5)	11a2
(2)	(2, 2), (2, 4)	200b1
(2)	(4), (2, 2)	46a1
(2)	(4), (2, 6)	36a3
(2)	(4), (2, 2), (2, 4)	128a1
(2)	(4), (2, 6), (2, 12)	1040g2
(2)	(4), (10), (2, 10)	450a3
(2)	(4), (22), (2, 2)	49a2
(2)	(8), (2, 2), (2, 4)	294f1
(2)	(4), (2, 2), (2, 4), (2, 22)	49a1
(2)	(4) ² , (2, 2), (2, 4)	120b1
(2)	(4) ² , (2, 2), (4, 4)	320a4
(2)	(4) ² , (2, 6), (2, 12)	450g1
(2)	(4), (6), (2, 2), (2, 6)	14a3
(2)	(4), (6), (2, 6), (6, 6)	98a3
(2)	(4), (6) ² , (2, 2)	726a2

G	$\mathcal{H}_{\mathbb{Q}}(20, E)$	Label
(2)	(4), (8), (2, 2), (2, 8)	45a1
(2)	(4), (10), (2, 2), (2, 10)	450a1
(2)	(4), (10) ² , (2, 2)	768b1
(2)	(4), (12), (2, 2), (2, 12)	30a3
(2)	(4), (16), (2, 2), (2, 16)	3150bk1
(2)	(6), (12), (2, 2), (2, 6)	36a4
(2)	(8) ² , (2, 2), (4, 8)	2880r6
(2)	(4) ² , (2, 2), (2, 4) ²	33a4
(2)	(4) ² , (2, 6), (2, 12) ²	960o7
(2)	(4) ² , (8), (2, 2), (2, 4)	33a2
(2)	(4) ² , (8), (2, 2), (4, 4)	64a4
(2)	(4), (6), (2, 2), (2, 4), (2, 6)	130a4
(2)	(4), (8), (2, 2), (2, 4), (2, 8)	144b1
(2)	(4), (8), (12), (2, 2), (2, 12)	960e3
(2)	(4), (8), (16), (2, 2), (2, 8)	63a1
(2)	(4), (10), (2, 2), (2, 10), (5, 10)	150b3
(2)	(4), (10) ² , (2, 2), (2, 10)	198e1
(2)	(4), (12), (2, 2), (2, 4), (2, 12)	720j3
(2)	(4), (12), (24), (2, 2), (2, 12)	960o3
(2)	(6) ² , (22), (2, 2), (2, 4)	256a1
(2)	(10) ² , (20), (2, 2), (2, 10)	450a4
(2)	(4) ² , (8), (2, 2), (2, 4) ²	17a3
(2)	(4) ² , (8) ² , (2, 2), (2, 4)	45a3
(2)	(4), (8) ² , (2, 2), (2, 4), (2, 8)	24a6
(2)	(4), (8) ³ , (2, 2), (2, 8)	45a6
(2)	(4), (8), (16) ² , (2, 2), (2, 8)	75b1
(2)	(4), (10) ² , (2, 2), (2, 10), (5, 10)	150b1
(2)	(4), (10) ² , (20), (2, 2), (2, 10)	450a2
(2)	(4) ² , (8) ² , (2, 2), (2, 4) ²	63a6
(2)	(4), (6) ² , (2, 2), (2, 6) ² , (3, 6)	112c3
(2)	(4), (8) ³ , (16), (2, 2), (2, 8)	75b6
(2)	(4), (8) ² , (16), (2, 2), (2, 4), (2, 8)	510e7
(2)	(4), (8), (16) ² , (2, 2), (2, 4), (2, 8)	1470k3
(2)	(4), (10) ² , (20), (2, 2), (2, 10), (5, 10)	66c3
(2)	(6) ² , (12), (2, 2), (2, 6) ² , (3, 6)	98a4
(2)	(4) ² , (6), (12) ² , (2, 2), (2, 4), (2, 6)	30a7
(2)	(4) ² , (8) ³ , (2, 2), (2, 4) ²	15a5

G	$\mathcal{H}_{\mathbb{Q}}(20, E)$	Label
(2)	$(4)^2, (8)^4, (2, 2), (2, 4)$	630c6
(2)	$(4)^2, (8)^4, (2, 2), (4, 4)$	4410r6
(2)	$(4), (8)^2, (16)^2, (2, 2), (2, 4), (2, 8)$	1680p1
(2)	$(4)^2, (6), (8), (12)^2, (2, 2), (2, 4), (2, 6)$	90c5
(2)	$(4)^2, (6), (12)^2, (2, 2), (2, 4)^2, (2, 6)$	90c4
(3)	$(3, 3)$	19a1
(3)	$(15), (5, 15)$	50a3
(3)	$(15)^2$	450b2
(3)	$(15)^2, (5, 15)$	50a1
(4)	$(2, 4), (2, 8)$	64a3
(4)	$(8), (2, 4)$	33a3
(4)	$(8), (2, 8)$	192c6
(4)	$(8), (2, 12)$	150c3
(4)	$(8), (4, 4)$	40a4
(4)	$(8), (2, 4), (2, 8)$	17a4
(4)	$(8), (2, 4), (4, 4)$	17a1
(4)	$(8), (2, 8), (2, 16)$	1470k1
(4)	$(8)^2, (2, 4), (2, 8)$	24a3
(4)	$(8)^2, (2, 8), (4, 8)$	240d6
(4)	$(8), (12), (2, 4), (2, 12)$	90c1
(4)	$(12), (24), (2, 4), (2, 12)$	960o8
(4)	$(8)^2, (16), (2, 4), (2, 8)$	21a4
(4)	$(8)^2, (2, 4), (2, 8)^2, (4, 4)$	195a6
(4)	$(8)^2, (16)^2, (2, 4), (2, 8)$	15a7
(4)	$(8)^2, (16)^3, (2, 4), (2, 8)$	1230f4
(4)	$(8)^2, (16)^2, (2, 4), (2, 8)^2, (4, 4)$	210e6
(5)	$(5, 5)$	11a1
(5)	$(15), (5, 5)$	50b2
(5)	$(15), (5, 15)$	50b1
(5)	$(25)^2, (5, 5)$	11a3
(6)	$(12), (2, 6)$	14a4
(6)	$(12), (2, 6), (2, 12)$	130a2
(6)	$(12), (2, 6), (3, 6), (6, 6)$	14a1
(6)	$(12)^2, (2, 6), (2, 12)$	30a1
(6)	$(12)^2, (2, 6), (2, 12)^2$	90c7
(6)	$(12)^2, (24), (2, 6), (2, 12)$	90c8
(8)	$(16), (2, 8)$	21a3

G	$\mathcal{H}_{\mathbb{Q}}(20, E)$	Label
(8)	(16), (2, 8), (2, 16)	1230f1
(8)	(16), (2, 8), (4, 8)	15a4
(8)	(16) ² , (2, 8), (2, 16)	210e1
(10)	(20), (2, 10), (5, 10)	66c1
(12)	(24), (2, 12)	90c3
(2, 2)	(2, 4), (4, 4)	64a1
(2, 2)	(2, 4) ³	33a1
(2, 2)	(2, 4) ² , (2, 8)	63a2
(2, 2)	(2, 4) ² , (2, 12)	960o6
(2, 2)	(2, 4) ² , (4, 4)	17a2
(2, 2)	(2, 4) ² , (4, 8)	1200j4
(2, 2)	(2, 4), (2, 8), (4, 8)	75b3
(2, 2)	(2, 4) ³ , (2, 6)	210a6
(2, 2)	(2, 4) ³ , (2, 8)	45a5
(2, 2)	(2, 4) ³ , (4, 4)	231a3
(2, 2)	(2, 4) ² , (2, 6), (2, 12)	30a6
(2, 2)	(2, 4) ² , (2, 8), (2, 16)	75b2
(2, 2)	(2, 4) ² , (2, 8), (4, 4)	40a1
(2, 2)	(2, 4) ² , (2, 8), (4, 8)	510e5
(2, 2)	(2, 4), (2, 6), (2, 12) ²	14400bo6
(2, 2)	(2, 4) ³ , (2, 6), (2, 12)	90c2
(2, 2)	(2, 4) ³ , (2, 8) ²	45a2
(2, 2)	(2, 4) ³ , (2, 8), (4, 4)	21a2
(2, 2)	(2, 4) ² , (2, 6), (2, 12) ²	720j6
(2, 2)	(2, 4) ² , (2, 8) ² , (4, 4)	75b5
(2, 2)	(2, 4), (2, 6), (2, 12) ³	150c6
(2, 2)	(2, 4) ³ , (2, 8) ² , (4, 4)	42a3
(2, 2)	(2, 4) ² , (2, 8) ³ , (4, 4)	294c2
(2, 2)	(2, 4) ³ , (2, 8) ³ , (4, 4)	15a2
(2, 2)	(2, 4) ² , (2, 8) ⁴ , (4, 4)	6720cd4
(2, 2)	(2, 4) ³ , (2, 8) ⁴ , (4, 4)	210e5
(2, 4)	(2, 8) ² , (4, 4)	21a1
(2, 4)	(2, 8) ² , (4, 8)	1230f2
(2, 4)	(2, 8), (4, 4), (4, 8)	15a1
(2, 4)	(2, 8) ² , (2, 16), (4, 4)	15a3
(2, 4)	(2, 8) ² , (4, 4), (4, 8)	210e3
(2, 6)	(2, 12) ³	30a2

G	$\mathcal{H}_{\mathbb{Q}}(20, E)$	Label
$(2, 8)$	$(2, 16)^2, (4, 8)$	210e2