17
$$(5-3i)^2 + (7+4i)^2 = 25-30i-9+49+56i-16$$
 5) $Jm(z^2) = 49+26i$

2)
$$z_1 = \frac{1-i}{1+i}$$
, $z_2 = \frac{1+2i}{1-i}$

a)
$$z_1 = \frac{(1-i)(1-i)}{(1+i)(1-i)}$$

= $\frac{1-2i-1}{1+1}$

b)
$$z_1 \cdot z_2 = \frac{1+2i}{1+2i}$$

$$= \frac{(1+2i)(1-i)}{(1+i)(1-i)}$$

$$= \frac{1+i+2}{1+1}$$

$$= \frac{1}{2}(3+i)$$

=7
$$\frac{2+164i}{(2+i)+164i} = 4i$$

5)
$$Im(z^2) = 18b$$
, $Im(z^3) = Im((9+bi)^3)$, $b \in \mathbb{N}$

127 1949=52 19-9-2, 199=8

12 = 61.

$$= 3 - b^{3} + 243b = 18b$$

$$= 3 - b^{2} + 243 = 18$$

$$= 3 - b^{2} = 225$$

$$= 3 - b^{2} = 225$$

$$= 3 - b^{2} = 15$$

25 35

(6)
$$z = 3i^{3} - 2ai^{2} + (1-a)i + 5, a \in \mathbb{R}$$

 $= 7z = -3i + 2a + (1-a)i + 5$
 $= 7z = -3i + 2a + (1-a)i + 5$
 $= 7z = -3i + 2a + (1-a)i + 5$
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 $= 7z = -3i + 2a + (1-a)i + 5$
 $= 7z = -3i + 2a + (1-a)i + 5$
 $= 7z = -3i + 2a + (1-a)i + 5$

7)
$$x^{2} + 4ix - 13 = 0$$

 $= 7(x^{2} + 4ix - 4) - 13 + 4 = 0$
 $= 7(x^{2} + 4ix - 4) - 13 + 4 = 0$
 $= 7(x + 2i)^{2} - 9 = 0$
 $= 7(x + 2i)^{2} = 9$
 $= 7(x + 2i)^{2} = 9$

8) roots are s, 2s
=> 3r = -b, 2r²=1
=> c=
$$\frac{1}{\sqrt{2}}$$
 :: $\frac{1}{\sqrt{2}}$

9)
$$a+b=\frac{-14}{5}$$
, $ab=\frac{-16}{5}$
=) $(a-2)(b-2)=ab-2(a+b)+4$
= $-\frac{18}{5}+\frac{29}{5}+\frac{29}{5}$
= $-\frac{16}{5}$

10)
$$4x^2 + (a+8)x + 9 = 0$$
 exactly 1 real rest
=) $(a+8)^2 - 4(4)(9) = 0$
=) $(a+8)^2 + 144 = 0$
=? $(a+8)^2 = 144$
=? $a+8 = \pm 12$
 $\therefore |a=4,-20|$

11)
$$12 \times 2^{2} - 26x + N = (x-r)(x-s)$$

=7 r+s = 26, N= rs
=> 19(26) + 75s = 1994
=> 75s = 1994 - 494 = 1500
=> 8 = 20, r=6
: N= 120

13) f(x) = x2+mx+n roots 2r, 2s 12) p+q=S, p-q=2, pq=8 27 p2 + 2pq + q2 = S2 3 = (3 g(x) = x2+px+m = coots (, 3 => f(x) = (x-2r)(x-2s), g(x) = (x-r)(x-s)p2-2pq+q2=4 =7 4pq, = S2-4 d' () =7 m = -2(r+s) = rs=7 52= 4(8)+4=36 081 = 08 PS + 6 = 4rs :. S= ±6 8 = E+S+p= -(r+s)= ½ rs SIBBOS + 3 (B-10) + 3 2 - 5 2 - 5 20 = 18 2+3(2-1)+25+36-=55= 0=(p-1)+8- (= 0=(5) mit 131 = 75 5---0= 81-x3445x (F 0=++81-(4-x34+5x) (= 3-13(3,5+13) * 0=P-5(35+x3 (=) (5-1)(34) P=5(35+x) (= 5+5+1 = E + = 35 + x, 5= 35-8-35-8 = x/3 1=5,5 , 01-378 5= 38+5=54504+5440 (8 一声 = 一一 3- = dr = 242 () S = -245 7 + 2 ++ (d+p) S-dp=(S-d)(S-p) (= 5 = HJ 3 50 + 10 9 = 3 + 3 + 3 - -2-5 = FUEDV = 52424-4=40450S= ton/ 100 / 1/200 0= P+ 2(8+0) + 24 (0) -24- =00 S= 0= (9)(4)4 - (8+6) (= 71--15 (= 0-141 - (8+0) (= 4845(21-37-15) P+1="(8-5) S= 517 = 8-45 5= 3+41+0=5 7 (2-X)(5-X): 4+X05-3X 29 (11 37:45=2475 44691 = 235 = 1994 STONE (MELLIN) FIRM FOR CO 3071=19914-4991 = 27.5 C (114 JPQ-) P = HO! OCO- = 10 C= 3 = 7 , 05 = 8 (2) 111 = 1 4 176- 6 [DEI = 11 : 1-590 = 11.