

ANSWER SHEET

1 $\frac{7}{40}$ or 0.175

9 (5, 14) and (2, -4)

2 $\frac{-1}{7}$

10 118.5

3 2.5

11 $42 - 22\sqrt{6}$

4 $\frac{-7}{4}$

12 (38, 40)

5 36

13 396

6 55

14 15

7 1.75

15 $X^7 - 14X^5 + 49X^3 - 36X$

8 $\frac{-9}{5}$ or -1.8

TEAM QUESTIONS ALGEBRA I

① $\frac{7 \cdot 15 \cdot 7 \cdot 5 \cdot 7 \cdot 2 \cdot 5 \cdot 19}{7 \cdot 5 \cdot 1 \cdot 25 \cdot 7 \cdot 1 \cdot 20 \cdot 12 \cdot 18 \cdot 19} = \left(\frac{7}{40}\right)$

② AB $\frac{-2-3}{4-1} = \frac{-5}{3}$ AC $\frac{-2-4}{4-6} = \frac{-6}{-2} = \frac{3}{1}$ BC $\frac{3-4}{1-6} = \frac{-1}{-5} = \frac{1}{5}$
 $\left(\frac{-5}{3}\right)\left(\frac{1}{5}\right)\left(\frac{1}{1}\right) = \left(-\frac{1}{3}\right)$

③ $a+2b+2c+d=35$; $b=8-a$ $c=12-d$

$a+2(8-a)+2(12-d)+d=35$

$a+16-2a+24-2d+d=35$

$-a-d+40=35$

$-a-d=-5$

$a+d=5$

$\frac{a+d}{2} = \left(2.5\right)$

④ $5a-9=4b-16$ $3b-15+2b=6+1$ $2c-7=6c+9$
 $a=-7$ $5b-15=6+1$ $-16=4c$
 $4b=16$ $b=4$ $-4=c$

$3d+4-5d-5-8=-1$

$-2d-9=-1$

$-2d=8$

$d=-4$

$\frac{ad}{bc} = \frac{(-7)(-4)}{(4)(-4)} = \left(-\frac{7}{4}\right)$

⑤ AB = $\sqrt{3^2+4^2} = 5$ CD = $\sqrt{3^2+4^2} = 5$
 BC = $\sqrt{5^2+12^2} = 13$ DA = $\sqrt{5^2+12^2} = 13$ P = $5+5+13+13 = \left(36\right)$

⑥ $f(2) = \frac{2(3)(5)}{6} = 5$ $f(4) = \frac{4 \cdot 5 \cdot 9}{6} = 30$ $f(6) = \frac{6 \cdot 7 \cdot 13}{6} = 91$ $f(8) = \frac{8 \cdot 9 \cdot 17}{6} = 204$
 $\frac{5+30+91+204}{6} = \frac{330}{6} = \left(55\right)$

⑦ $A = \frac{2x+10}{2x-1}$ $B = 5$
 $x = \frac{1}{2}$
 $3\left(\frac{1}{2}\right) + 5 = \left(6.75\right)$

⑧ $(9x-10)(2x+1) = 0$
 roots $\frac{10}{9}$ $-\frac{1}{2}$
 sum of reciprocals $\frac{9}{10} + \frac{-2}{1} = \frac{-11}{10}$
 reciprocal of sum $\frac{1}{\frac{9}{10} + \frac{-2}{1}} = \frac{1}{-\frac{11}{10}} = \frac{10}{-11}$

$\left(\frac{-11}{10}\right)\left(\frac{10}{-11}\right) = \left(-\frac{9}{5}\right)$

⑨ $y = 6x+16$ $x^2-x-6 = 6x+16$
 $x^2-7x+10 = 0$
 $(x-5)(x-2) = 0$
 $x = 5$ or 2
 $y = 6(5)+16 = 46$ $6(2)+16 = 28$
 14 -4
(5, 14) and (2, -4)

ⓓR Plug into calculator and use TRACE.

⑩ find g or inverses $f(g(5)) = 5$ $g(f(10)) = 10$
 $f(f(15)) = f(47) = 143$ $g(g(20)) = g(6) = \frac{4}{3}$
 $\frac{5+10+143}{\frac{4}{3}} = 158 \cdot \frac{3}{4} = \left(118.5\right)$

⑪ $A = 5\sqrt{3}+3\sqrt{3}+2\sqrt{3} = 10\sqrt{3}$ $(10\sqrt{3}+6\sqrt{2})(3\sqrt{3}-4\sqrt{2}) =$
 $B = 5\sqrt{2}+7\sqrt{2}-6\sqrt{2} = 6\sqrt{2}$ $90-40\sqrt{6}+18\sqrt{6}-48 =$
 $C = \sqrt{3}-4\sqrt{3}+6\sqrt{3} = 3\sqrt{3}$ $\left(42-22\sqrt{6}\right)$
 $D = \sqrt{2}-2\sqrt{2}-3\sqrt{2} = -4\sqrt{2}$

⑫ Lance 5000-50w
 CHRISTIAN 2000+30w
 $2000+30w \geq 5000-50w$
 $80w \geq 3000$
 $w \geq 37.5$
 on the **38th WEEK** HE HAS 3100 SHE HAS 3140 $3140-3100 = \left(40\right)$

⑬ $2+3+5+7+11+13+17+19+23+29 = 129$
 $4+6+8+9+10+12+14+15+16+18 = 142$
 $1+2+3+4+5+6+7+8+9+10 = 55$
 $1+3+5+7+9+11+13+15+17+19 = 100$
396

⑭ $3A = 3(3)-4(4) = 9-16 = -7$ $3(5)-4(6) = 15-24 = -9$ $-7x-9 = 3(-7)-4(-9) = 21+36 = \left(57\right)$

⑮ $x(x^2-1)(x^2-9)(x^2-9)$
 $(x^3-x)(x^4-13x^2+36) = X^7-13X^5+36X^3-X^5+13X^3-36X =$
 $X^7-14X^5+49X^3-36X$