Part I

34 - 35

$$C_p \text{ (Ideal)} = \frac{USL - LSL}{6\sigma} = \frac{3.53 - 3.45}{6 \times 0.016} = 0.625 \simeq \boxed{0.63}$$

36 - 38

$$C_{pu} = \frac{USL - \mu}{3\sigma} = \frac{3.53 - 3.51}{3 \times 0.016} = 0.417$$

$$C_{pL} = \frac{\mu - LSL}{3\sigma} = \frac{3.51 - 3.47}{3 \times 0.016} = 0.833$$

$C_{pk} = \min(C_{pu}, C_{pL})$

$= \min(0.42, 0.83)$

b'cos 0.42 is minimum

$\boxed{C_{pk} = 0.42}$ (actual)

41 - 42

$$C_p \text{ (Ideal)} = \frac{USL - LSL}{6\sigma} = \frac{49 - 38}{6 \times 2} = 0.916 \simeq \boxed{0.92}$$

43 - 45

$$C_{pu} = \frac{USL - \mu}{3\sigma} = \frac{49 - 40}{3 \times 2} = 1.5$$

$$C_{pL} = \frac{\mu - LSL}{3\sigma} = \frac{40 - 38}{3 \times 2} = 0.33$$

$C_{pk} = \min(C_{pu}, C_{pL})$

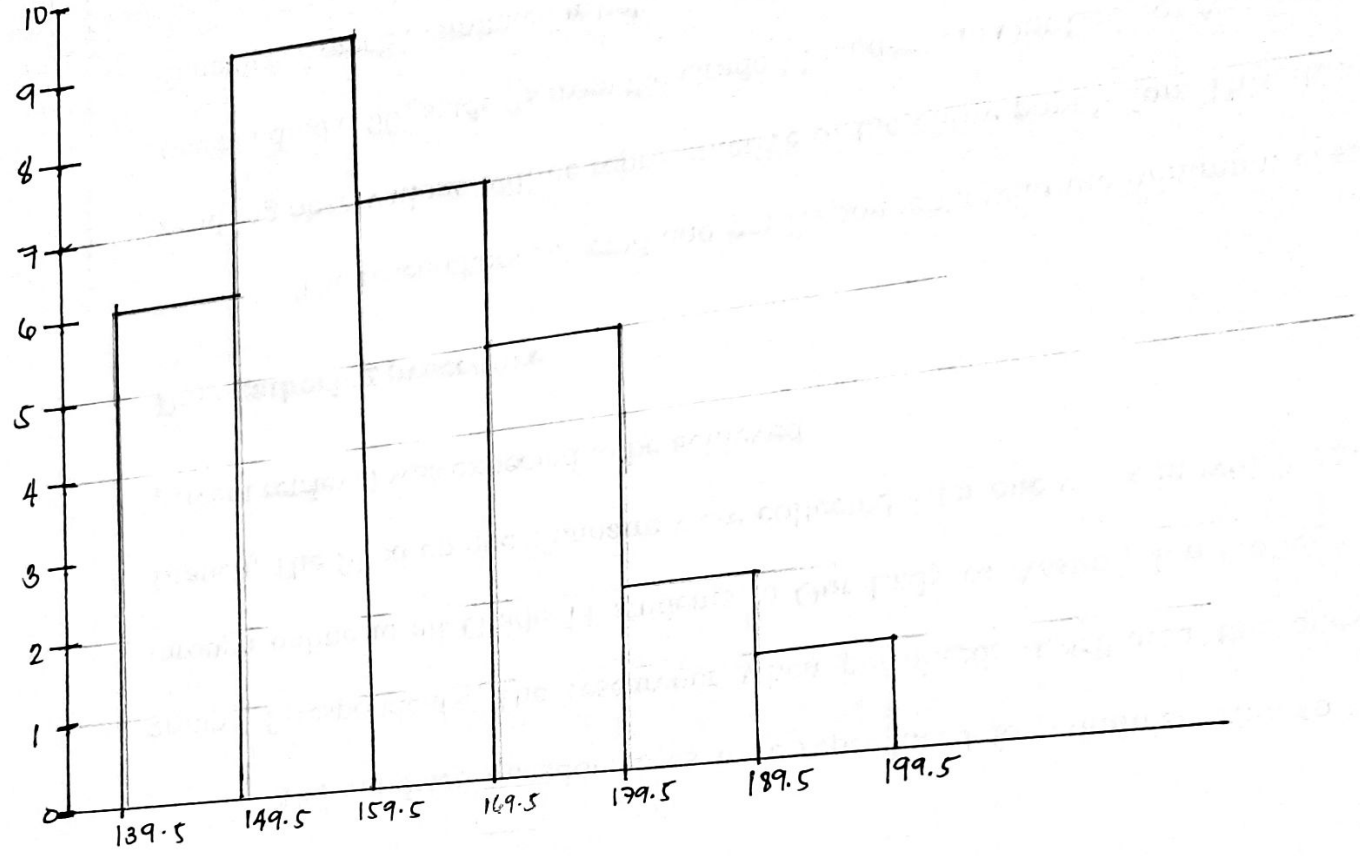
$= \min(1.5, 0.33)$

b'cos 0.33 is minimum

$\boxed{C_{pk} = 0.33}$ actual

Part 2

1.



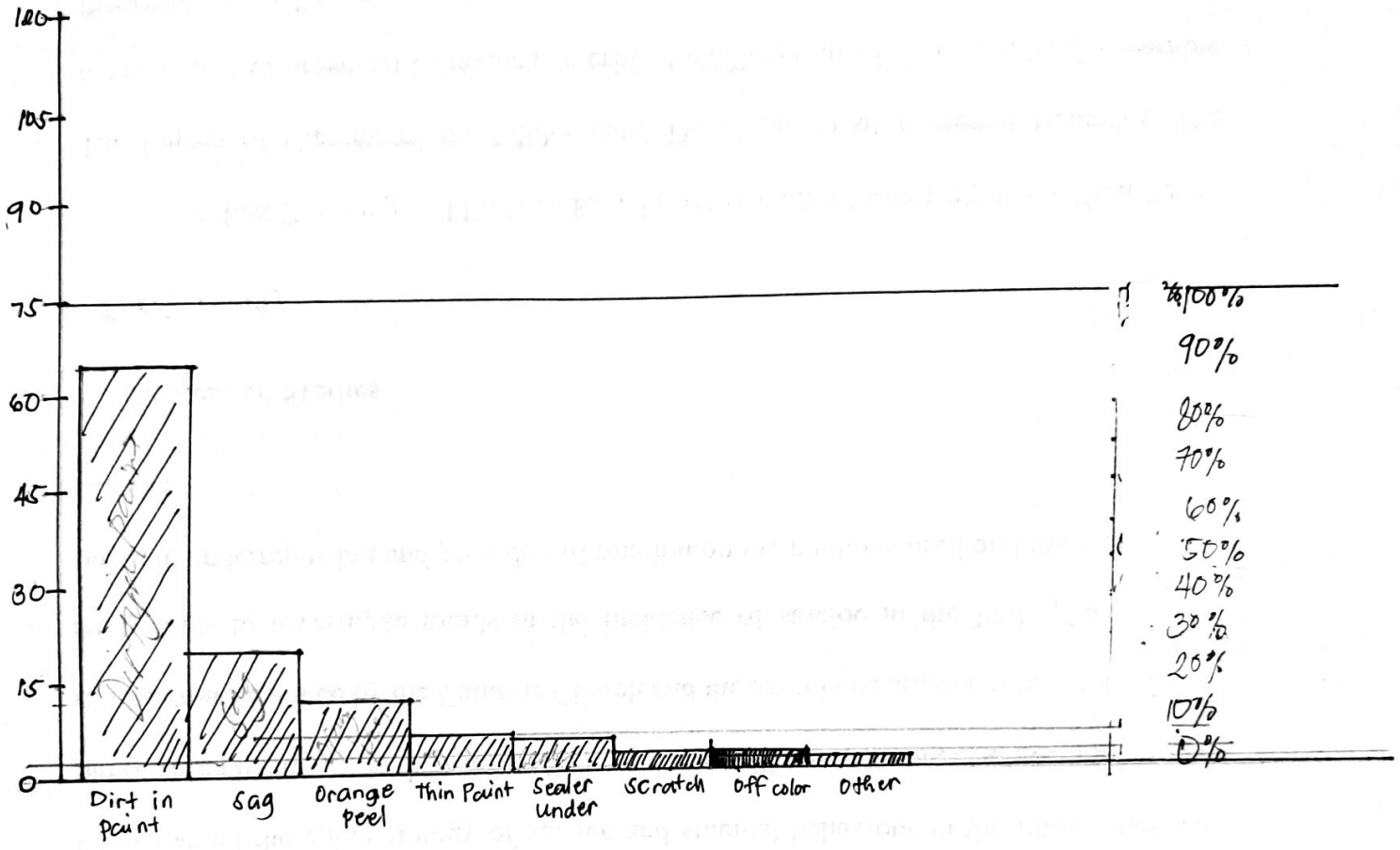
b 7 people

c. 9 + 6 = 15 people

d. 5 + 2 + 1 = 8 people

f. (9 + 7 + 5) / 30 = 0.7 = 70%

g skew right



Counts	65	21	12	5	4	2	2	1
Percent	58.0	18.8	10.7	4.5	3.4	1.8	1.8	0.8
Cum %	58.0	76.8	87.5	92.0	95.6	97.4	99.2	100.0