$$\begin{aligned}\theta + 40^\circ &= 180^\circ \\ \theta &= 140^\circ\end{aligned}$$

$$S = 180^\circ(n-2)$$

$$S = n\theta$$

$$\begin{aligned}S &= S \\ 180^\circ(n-2) &= n\theta \\ 180^\circ n - 360^\circ &= n\theta \\ 180^\circ n - n\theta &= 360^\circ \\ n\left(180^\circ - \theta\right) &= 360^\circ \\ n &= \frac{360^\circ}{180^\circ - \theta}\end{aligned}$$

Let the smallest angle be $2k$. This means that the other angles will be $3k$, $4k$, $4k$ and $5k$ respectively.

Let S be the sum of the interior angles in the pentagon.

$$\begin{aligned}S &= S \\ 2k + 3k + 4k + 4k + 5k &= 180^\circ(5-2) \\ 18k &= 540^\circ \\ k &= 30^\circ\end{aligned}$$

Therefore, since the largest angle is $5k$, it is $5(30^\circ) = 150^\circ$.

$$\begin{aligned}
\angle XZB + \angle ABZ &= 180^\circ \text{ (int. } \angle\text{s, AB//XZ)} \\
59^\circ + \angle YBZ + 46^\circ &= 180^\circ \\
\angle YBZ &= \boxed{75^\circ}
\end{aligned}$$

$$\begin{aligned}
a + 134^\circ &= 180^\circ \text{ (int. } \angle\text{s, } AB//\ell) \\
a &= 46^\circ \text{ (int. } \angle\text{s, } AB//\ell)
\end{aligned}$$

$$b = 59^\circ \text{ (alt. } \angle\text{s, } XZ//\ell)$$

$$\text{obtuse } \angle CWZ = a + b = 46^\circ + 59^\circ = \boxed{105^\circ}$$

$$\begin{aligned}
30^\circ + 30^\circ + 30^\circ + (360^\circ - x^\circ) &= 360^\circ \\
x &= \boxed{270^\circ}
\end{aligned}$$

$$\begin{aligned}
&\frac{1}{3}ab + \left(\frac{1}{4}ab^2 - \frac{1}{5}ba\right) + \left(\frac{1}{5}ab^2 + ab\right) \\
&= \frac{1}{3}ab + \frac{1}{4}ab^2 - \frac{1}{5}ba + \frac{1}{5}ab^2 + ab \\
&= \frac{1}{3}ab - \frac{1}{5}ab + ab + \frac{1}{4}ab^2 + \frac{1}{5}ab^2 \\
&= ab\left(\frac{1}{3} - \frac{1}{5} + 1\right) + ab^2\left(\frac{1}{4} + \frac{1}{5}\right) \\
&= \frac{17}{15}ab + \frac{9}{20}ab^2 \\
&= ab\left(\frac{17}{15} + \frac{9}{20}b\right)
\end{aligned}$$

Commutative: $A + B = B + A$, $AB = BA$

$$a - b \neq b - a,\ a - b = a + (-b) = (-b) + a$$

$$\frac{a}{b} \neq \frac{b}{a},\ a \cdot \frac{1}{b} = \frac{1}{b} \cdot a$$

$$
\begin{aligned}
&\left(3a+\frac{1}{4}b\right)+\left(-b+\frac{1}{4}c\right)+\left(-c+\frac{1}{4}a\right)\\
&=3a+\frac{1}{4}b-b+\frac{1}{4}c-c+\frac{1}{4}a\\
&=3a+\frac{1}{4}a+\frac{1}{4}b-b+\frac{1}{4}c-c\\
&=\frac{13}{4}a-\frac{3}{4}b-\frac{3}{4}c
\end{aligned}
$$

$$
\begin{aligned}
&\left(-\frac{1}{3}a+\frac{3}{4}b-\frac{4}{5}\right)-\left(\frac{4}{3}a-\frac{8}{5}b+\frac{2}{5}\right)\\
&=-\frac{1}{3}a+\frac{3}{4}b-\frac{4}{5}-\frac{4}{3}a+\frac{8}{5}b-\frac{2}{5}\\
&=-\frac{1}{3}a-\frac{4}{3}a+\frac{3}{4}b+\frac{8}{5}b-\frac{4}{5}-\frac{2}{5}\\
&=-\frac{5}{3}a+\frac{47}{20}b-\frac{6}{5}
\end{aligned}
$$

$$-a-b=-(a+b)$$

$$
\begin{aligned}
&\frac{8(3x-4y)}{5}-\frac{4x-y}{10}+\frac{3(x-3)}{5}\\
&=\frac{8(3x-4y)(2)}{10}-\frac{4x-y}{10}+\frac{3(x-3)(2)}{10}\\
&=\frac{48x-64y-4x+y+6x-18}{10}\\
&=\frac{48x-4x+6x-64y+y-18}{10}\\
&=\frac{50x-63y-18}{10}
\end{aligned}
$$

$$x + y + 2z$$
$$(60x + 80y + 450z)\,\mathrm{g}$$
$$36 - x - y - 2z$$

$$\begin{aligned}
\text{perimeter of } \triangle &= \text{perimeter of rectangle} \\
3(x+1) &= 2(x - 1 + y) \\
3x + 3 &= 2x - 2 + 2y \\
-2x + 2 &= -2x + 2 \\
\hline
x + 5 &= 2y \\
y &= \boxed{\frac{x+5}{2}}
\end{aligned}$$

$$\begin{aligned}
5p - 7 &= 3p + 1 \\
2p &= 8 \\
p &= 4
\end{aligned}$$

$$DC = 5p - 7 = 5(4) - 7 = 20 - 7 = 13$$

$$\begin{aligned}
S &= S \\
156^\circ n &= 180^\circ(n-2) \\
156n &= 180n - 360 \\
24n &= 360 \\
n &= 15
\end{aligned}$$

$$
\begin{aligned}
-15 + 2(5 - 2x) &= 4(2 - 3x) + 19 \\
-15 + 10 - 4x &= 8 - 12x + 19 \\
-5 - 4x &= 27 - 12x \\
8x &= 32 \\
x &= \boxed{4}
\end{aligned}
$$

$$
\begin{aligned}
0.99x + 1.4(22 - x) &= 27.52 \\
0.99x + 30.8 - 1.4x &= 27.52 \\
-0.41x + 30.8 &= 27.52 + 0x \\
30.8 - 27.52 &= 0.41x \\
0.41x &= 3.28 \\
x &= \boxed{8}
\end{aligned}
$$

$$
\begin{aligned}
3 &= 28 - \frac{5}{12}x \\
36 &= 336 - 5x \\
5x &= 300 \\
x &= \boxed{60}
\end{aligned}
$$

$$
\begin{aligned}
2\frac{5}{8}x - 28\frac{3}{8} &= 34\frac{5}{8} \\
\frac{21}{8}x - \frac{227}{8} &= \frac{277}{8} \\
21x - 227 &= 277 \\
21x &= 504 \\
x &= \boxed{24}
\end{aligned}
$$

$$
\begin{aligned}
\frac{3(x-4)}{4} - \frac{x+3}{5} &= -\frac{3}{10} \\
60x - 80 - 4x - 12 &= -6 \\
56x - 92 &= -6 \\
56x &= 84 \\
x &= \boxed{\frac{3}{2}}
\end{aligned}
$$

$$\frac{2}{9(7x-3)} = \frac{3}{81x-45}$$
$$\frac{2}{9(7x-3)} = \frac{3}{9(9x-5)}$$
$$1 \div \frac{2}{7x-3} = 1 \div \frac{3}{9x-5}$$
$$\frac{7x-3}{2} = \frac{9x-5}{3}$$
$$21x-9 = 18x-10$$
$$3x = -1$$
$$x = \boxed{-\frac{1}{3}}$$

$$\frac{2}{9(7x-3)} = \frac{3}{81x-45}$$
$$\frac{2}{9(7x-3)} = \frac{3}{9(9x-5)}$$
$$18x-10 = 21x-9$$
$$-1 = 3x$$
$$x = \boxed{-\frac{1}{3}}$$

$$\sqrt{2x} = \sqrt{x-1}$$

$$p = 6 + 4(n-1) = 2 + 4n$$
$$q = 6 + 2(n-1) = 2(3 + n - 1) = 2(n+2)$$

$$\begin{aligned} \frac{5}{x} &= 10 \\ 5 &= 10x \\ x &= \frac{1}{2} \end{aligned}$$

$$\begin{aligned} \frac{y+2}{2} &= 5 \\ y + 2 &= 10 \\ y &= 8 \end{aligned}$$

Let the radius of the cylinder be r.

$$\begin{aligned} V_{\text{cylinder}} &= 24.75\pi \\ \pi r^2(11) &= 24.75\pi \\ r^2(11) &= 24.75 \\ r^2 &= 2.25 \\ r &= 1.5\,\text{cm} \quad \square \end{aligned}$$

$$\begin{aligned} V &= V_{\text{prism}} - V_{\text{cylinder}} \\ &= \frac{1}{2}(10)(12)(11) - 24.75\pi \\ &\approx 582\,\text{cm}^3 \end{aligned}$$

$$2 \times 292 \times 110\% \times 107\% \approx \$687.37$$

Option 1:

$$687.37 + 2 \times 2 \times 29.90 \times 110\% \times 107\% \approx \$828.14$$

Option 2:

$$2 \times 342 \times 110\% \times 107\% \times 90\% \approx \$724.56$$

$$\frac{10051}{16.25} = \frac{20100}{333}\,\text{km}\,\text{h}^{-1}$$
$$\frac{1431 + 1431 + 10051}{16.25} = \frac{12913}{\frac{65}{4}} = \frac{51612}{65}\,\text{km}\,\text{h}^{-1}$$
$$\frac{20100}{333}\,\text{km}\,\text{h}^{-1} \leqslant \text{average speed} \leqslant \frac{51612}{65}\,\text{km}\,\text{h}^{-1}$$

grades	frequency
A	5
B	8
C	10
D	7
E	6
total	36

rating	frequency
2	61
1	14
0	24
-1	57
-2	45

$$\frac{2(61)+1(14)+0(24)+(-1)(57)+(-2)(45)}{61+14+24+57+45} = \frac{-11}{201} \approx -0.0547$$

$$\begin{aligned}
&\frac{4m+3}{6}+\frac{(m-1)}{2}\\
&=\frac{4m+3}{6}+\frac{3(m-1)}{3\times 2}\\
&=\frac{4m+3}{6}+\frac{3m-3)}{6}\\
&=\frac{4m+3+3m-3}{6}\\
&=\boxed{\frac{m}{6}}
\end{aligned}$$

$$v^2=u^2+2as \iff v=\pm\sqrt{u^2+2as}$$

$$v=\pm\sqrt{12^2+2(9)(10)}=\pm\sqrt{324}=\pm 18$$

$$\begin{aligned}
\frac{180(n-2)}{n}&=152.5\\
180(n-2)&=152.5n\\
180n-360&=152.5n\\
27.5n&=360\\
n&=\frac{144}{11}
\end{aligned}$$

$$\begin{aligned}
L&=N+30\\
8000(1.02)\frac{18}{12}&=8000\left(1+\frac{r}{100}\right)\frac{18}{12}+30
\end{aligned}$$