BAB 3: RUMUS ALGEBRA
MATEMATIK TINGKATAN 2
RUMUS ALGEBRA

ungkapkan a sebagai perkara rumus

\[
\begin{align*}
\alpha + 2\beta &= \gamma \\
\alpha &= \gamma - 2\beta
\end{align*}
\]

\[
\begin{align*}
3\alpha - \gamma &= 5\beta \\
3\alpha &= 5\beta + \gamma \\
\alpha &= \frac{5\beta + \gamma}{3}
\end{align*}
\]

letakkan a di hadapan, yang lain pindah belakang

\[
\begin{align*}
7\gamma &= \alpha - 2\beta \\
\alpha &= 7\gamma + 2\beta
\end{align*}
\]

terbalikkan supaya a berada di hadapan

\[
\begin{align*}
-8\beta &= 3\alpha + 5\gamma \\
3\alpha + 5\gamma &= -8\beta \\
3\alpha &= -8\beta - 5\gamma \\
\alpha &= \frac{-8\beta - 5\gamma}{3}
\end{align*}
\]
RUMUS ALGEBRA

ungkapkan a sebagai perkara rumus

\[
\begin{align*}
2b &= \frac{14}{a} \\
a &= \frac{14}{2b} \\
a &= \frac{7}{b}
\end{align*}
\]

\[
\begin{align*}
3b &= \frac{20}{6a} \\
6a &= \frac{20}{3b} \\
a &= \frac{20}{(6)(3b)}
\end{align*}
\]

\[
\begin{align*}
2b &= \frac{12b - 4a}{5} \\
(5)(2b) &= 12b - 4a \\
10b &= 12b - 4a \\
4a + 10b &= 12b \\
4a &= 12b - 10b \\
4a &= 2b \\
a &= \frac{2b}{4} \\
a &= \frac{b}{2}
\end{align*}
\]
RUMUS ALGEBRA

ungkapkan a sebagai perkara rumus

\[\sqrt{a} = b\]
\[a = b^2\]

\[b = a^2\]
\[a = \sqrt{b}\]

\[b = \sqrt[7]{a}\]
\[\sqrt[7]{a} = b\]
\[a = 7b^2\]

\[b = \frac{a^2}{q}\]
\[\frac{a^2}{q} = b\]
\[a^2 = q\cdot b\]
\[a = \sqrt{qb}\]

Punca kuasa 2 pindah jadi kuasa 2

\[b = \frac{5}{a^2}\]
\[a^2 = \frac{5}{b}\]
\[a = \sqrt{\frac{5}{b}}\]
RUMUS ALGEBRA

\[ a = qb - 5c \]

Kira nilai:

a) \( a \) apabila \( b = 4 \) dan \( c = 3 \)
b) \( b \) apabila \( a = 17 \) dan \( c = 2 \)
c) \( c \) apabila \( a = 48 \) dan \( b = 5 \)

\[ a = qb - 5c \]
\[ a = q(4) - 5(3) \]
\[ = 36 - 15 \]
\[ = 21 \]
3r = -7s + 2v

Kira nilai:

a) r apabila s = 5 dan v = 1
b) s apabila r = 8 dan v = 3
c) v apabila r = 4 dan s = 2

3r = -7s + 2v
3r = -7(5) + 2(1)
3r = -35 + 2
3r = -33
r = -33
r = -11

-7s + 2v = 3r
3r = -7s + 2v
3(4) + 7(2)
12 + 14
26
2
13

v = 3r + 7s
v = 3r + 7s
v = 3(4) + 7(2)
3r = 12 + 14
3r = 26
3r = 2
v = 13

s = 3r - 2v
s = 3r - 2v
s = 3(8) - 2(3)
24 - 6
18
-7
-18
7

Ungkapkan v sebagai perkara rumus
Ungkapkan s sebagai perkara rumus
RUMUS ALGEBRA

\[ 3r^2 = s + v \]

Kira nilai \( r \) apabila \( s = 7 \) dan \( v = 5 \).

\[ r^2 = \frac{s + v}{3} \]
\[ r = \sqrt{\frac{s + v}{3}} \]
\[ r = \sqrt{\frac{7 + 5}{3}} \]
\[ r = \sqrt{\frac{12}{3}} \]
\[ r = \sqrt{4} \]
\[ r = 2 \]

\[ -5s = -4r^2 - 2v \]

Kira nilai \( r \) apabila \( s = 8 \) dan \( v = 2 \).

\[ -4r^2 - 2v = -5s \]
\[ -4r^2 = -5s + 2v \]
\[ r^2 = \frac{-5s + 2v}{-4} \]
\[ r = \sqrt{\frac{-5s + 2v}{-4}} \]
\[ r = \sqrt{\frac{-5(8) + 2(2)}{-4}} \]
\[ r = \sqrt{\frac{-40 + 4}{-4}} \]
\[ r = \sqrt{\frac{-36}{-4}} \]
\[ r = \sqrt{9} \]
\[ r = 3 \]
\[ 2\sqrt{r} = 3s - v \]

Kira nilai r apabila
\[ s = 4 \text{ dan } v = 7. \]

\[ r = \left( \frac{3s - v}{2} \right)^2 \]
\[ r = \left( \frac{3(4) - 7}{2} \right)^2 \]
\[ r = \left( \frac{12 - 7}{2} \right)^2 \]
\[ r = \left( \frac{5}{2} \right)^2 \]
\[ r = \frac{25}{4} \]

\[ 2\sqrt{5r - 2v} = 6s \]

Kira nilai r apabila
\[ s = 2 \text{ dan } v = -8. \]

\[ \sqrt{5r - 2v} = \frac{6s}{2} \]
\[ \sqrt{5r - 2v} = 3s \]
\[ 5r - 2v = (3s)^2 \]
\[ 5r - 2v = 9s^2 \]

5r = qs^2 + 2v

\[ r = \frac{qs^2 + 2v}{5} \]
\[ r = \frac{q(2)^2 + 2(-8)}{5} \]
\[ r = \frac{36 - 16}{5} \]
\[ r = \frac{20}{5} \]
\[ r = 4 \]
KAPURPUTEH

"success is the sum of small efforts repeated day in and day out"