

**UCUN KE- 2**  
**SEKOLAH MENENGAH PERTAMA (SMP)**  
**TAHUN PELAJARAN 2015/2016**

**PEMBAHASAN PAKET A**

Mata Pelajaran : Matematika

1. Pembahasan:

$$\begin{aligned} 2\frac{1}{2} : 1\frac{2}{3} + 2\frac{3}{4} - 1\frac{1}{4} \times 1\frac{1}{3} \\ = \frac{5}{2} \times \frac{3}{5} + 2\frac{3}{4} - \frac{5}{4} \times \frac{4}{3} \\ = \frac{3}{2} + 2\frac{3}{4} - \frac{5}{3} \\ = 2\frac{7}{12} \end{aligned}$$

Kunci Jawaban: A

2. Pembahasan:

$$\begin{aligned} K = 78 \text{ cm} \leftrightarrow p + l = 39 \\ p = \frac{8}{13} \times 39 = 24 \text{ cm}, l = \frac{5}{13} \times 39 = 15 \text{ cm} \\ \text{Luas} = 24 \times 15 = 360 \text{ cm}^2 \end{aligned}$$

Kunci Jawaban: B

3. Pembahasan:

$$\begin{aligned} \text{Luas} = (30 \text{ cm} \times 200) (12 \text{ cm} \times 200) \\ = 14.400.000 \text{ cm}^2 = 1.440 \text{ m}^2 \end{aligned}$$

Kunci Jawaban: C

4. Pembahasan:

$$2\sqrt{48} + \sqrt{75} = 8\sqrt{3} + 5\sqrt{3} = 13\sqrt{3}$$

Kunci Jawaban: D

5. Pembahasan:

$$27^{\frac{2}{3}} + 16^{\frac{3}{2}} = 3^2 + 4^3 = 9 + 64 = 73$$

Kunci Jawaban: C

6. Pembahasan:

$$\frac{6}{\sqrt{3}} = \frac{6}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = 2\sqrt{3}$$

Kunci Jawaban: C

7. Pembahasan:

$$\begin{aligned} \text{Bayar} &= 1(65\% \times 300.000) + 2(80\% \times 120.000) \\ &= \text{Rp}387.000,00 \end{aligned}$$

Kunci Jawaban: B

8. Pembahasan:

$$\begin{aligned} 920.000 &= 800.000 + \left(\frac{9}{12} \times \frac{p}{100}\right) 800.000 \\ \leftrightarrow \frac{120.000}{800.000} &= \frac{3p}{400} \\ \leftrightarrow p &= 20 \end{aligned}$$

Kunci Jawaban: C

9. Pembahasan:

$$\begin{aligned} a + 2b &= 8 \\ a + 7b &= 23 \\ 5b &= 15 \leftrightarrow b = 3, a = 2 \\ U_{50} &= a + 49b = 2 + 49(3) = 149 \end{aligned}$$

Kunci Jawaban: B

10. Pembahasan:

$$\begin{aligned} U_{10} &= 10^2 - 2(10) = 80 \\ U_{13} &= 13^2 - 2(13) = 143 \\ \text{Selisih} &= 143 - 80 = 63 \end{aligned}$$

Kunci Jawaban: D

11. Pembahasan:

$$\begin{aligned} 5(3x^2 + 4x - 6) - 8x^2 + 10x - 5 \\ = 15x^2 + 20x - 30 - 8x^2 + 10x - 5 \\ = 7x^2 + 30x - 35 \end{aligned}$$

Kunci Jawaban: A

12. Pembahasan:

$$\begin{aligned} 5(x + 2) + 3 &= 2x - 2 \\ \leftrightarrow 5x + 10 + 3 &= 2x - 2 \\ \leftrightarrow 3x &= -15 \\ \leftrightarrow x &= -5 \end{aligned}$$

Jadi  $4x + 3 = 4(-5) + 3 = -17$

Kunci Jawaban: A

13. Pembahasan:

$p + l = 18$

$\leftrightarrow 3x - 4 + x + 2 = 18$

$\leftrightarrow 4x = 20$

$\leftrightarrow x = 5$

$p = 3x - 4 = 11 \text{ m}, l = x + 2 = 7 \text{ m}$

Luas =  $77 \text{ m}^2$

Kunci Jawaban: C

14. Pembahasan:

$A \cap B = \{2, 3, 5\}$

Kunci Jawaban: C

15. Pembahasan:

$M = \{1, 3, 5, 15\}, N = \{2, 3, 5\}$

Banyak pemetaan =  $3^4 = 81$

Kunci Jawaban: D

16. Pembahasan:

$6 = 4(0) + 6$

$14 = 4(2) + 6$

$22 = 4(4) + 6$

$30 = 4(8) + 6$

...

$82 = 4(19) + 6$

Kunci Jawaban: B

17. Pembahasan:

$f(x) = 4x - 3$

$f(a) = 4a - 3 = 17 \leftrightarrow a = 5$

Kunci Jawaban: A

18. Pembahasan:

Gradien =  $\frac{1 - (-2)}{4 - 3} = 3$

PGL  $y = 3x + c$ , melalui  $(4, 1)$ , maka

$1 = 3(4) + c \leftrightarrow c = -11$

Jadi PGL  $y = 3x - 11$

Kunci Jawaban: A

19. Pembahasan:

Gradien garis  $m = 2$

Gradien garis  $k = -\frac{1}{2}$

Persamaan garis  $k$  adalah  $y = -\frac{1}{2}x + c$

$K$  melalui  $(2, 0)$  maka  $0 = -\frac{1}{2}(2) + c \leftrightarrow c = 1$

Jadi  $y = -\frac{1}{2}x + 1$  atau  $x + 2y = 2$

Kunci Jawaban: C

20. Pembahasan:

$4j + 5t = 60 \leftrightarrow 12j + 15t = 60$

$3j + 2t = 38 \leftrightarrow 12j + 8t = 152$

$7t = 28 \leftrightarrow t = 4$

$3j + 8 = 38 \leftrightarrow 3j = 30 \leftrightarrow j = 10$

Jadi  $1j + 3t = 10 + 12 = 22$

Kunci Jawaban: A

21. Pembahasan:

$p = 3l$

$p + l = 24$

$\leftrightarrow 3l + l = 24 \leftrightarrow 4l = 24 \leftrightarrow l = 6$

Kunci Jawaban: A

22. Pembahasan:

Ukuran	45 km	60 km	j km
Tripel Pythagoras	3	4	5

Jarak =  $5 \times 15 = 75 \text{ km}$

Kunci Jawaban: B

23. Pembahasan:

Luas arsir =  $(7 \times 7) + (12 \times 6) - 2(2 \times 4)$   
 $= 49 + 72 - 16$   
 $= 105 \text{ cm}^2$

Kunci Jawaban: B

24. Pembahasan:

Luas jala =  $(22 \times 14) - (20 \times 12) = 68 \text{ m}^2$

Biaya keramik =  $68 \times 30.000 = \text{Rp}2.040.000,00$

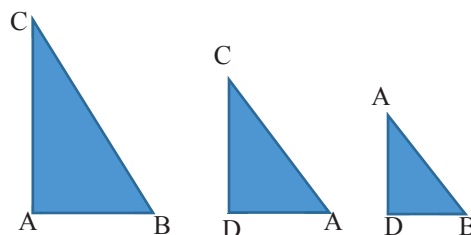
Kunci Jawaban: C

25. Pembahasan:

$K = 2(16 + 20) = 72 \text{ cm}$

Kunci Jawaban: C

26. Pembahasan:



Berlaku:  $\frac{AD}{CD} = \frac{AB}{AC} = \frac{BD}{AD}$

Kunci Jawaban: B

27. Pembahasan:  
 Segitiga yang kongruen  
 a.  $\triangle AOS \cong \triangle BOS$   
 b.  $\triangle AOF \cong \triangle BOE$   
 c.  $\triangle AOC \cong \triangle BOC$   
 d.  $\triangle AEC \cong \triangle BFC$   
 e.  $\triangle AEB \cong \triangle BFA$   
 f.  $\triangle ASC \cong \triangle BSC$   
 g.  $\triangle OCF \cong \triangle OCE$

Kunci Jawaban: A

28. Pembahasan:  
 Besar sudut =  $90^\circ + \left(\frac{20}{60} \times 30^\circ\right) = 100^\circ$

Kunci Jawaban: B

29. Pembahasan:  
 Sudut  $\angle BOC = 180^\circ - 82^\circ = 98^\circ$   
 Sudut  $\angle BDC = \frac{1}{2} \times 98^\circ = 49^\circ$

Kunci Jawaban: B

30. Pembahasan:  
 $\widehat{PQ} = \frac{50}{75} \times 60 = 40 \text{ cm}$

Kunci Jawaban: A

31. Pembahasan:  
 Banyak rusuk prisma =  $3n = 3 \times 8 = 24$   
 Banyak sisi =  $n + 2 = 8 + 2 = 10$

Kunci Jawaban: D

32. Pembahasan:  
 Panjang kerangka =  $4(10 + 8 + 6) = 96 \text{ cm}$   
 Sisa kawat =  $500 - 96 = 404 \text{ cm}$

Kunci Jawaban: A

33. Pembahasan:

Luas alas =  $12 \times 12 = 144 \text{ cm}^2$   
 Luas sisi tegak =  $4 \times \frac{1}{2} \times 12 \times 10 = 240 \text{ cm}^2$   
 Luas limas =  $144 + 240 = 384 \text{ cm}^2$

Kunci Jawaban: C

34. Pembahasan:  
 Biaya =  $200.000 \times 2 \times \frac{22}{7} \times 7 \times 7 = \text{Rp}61.600.000,00$

Kunci Jawaban: B

35. Pembahasan:  
 $V = 60 \times 2 \times 2 = 240 \text{ cm}^3$

Kunci Jawaban: B

36. Pembahasan:  
 Data urut: 50, 60, 65, 70, 70, 80, ...  
 Median = 75

Kunci Jawaban: B

37. Pembahasan:  
 $64 = \frac{60 + 64 + 65 + 67 + 68 + x}{6}$   
 $\leftrightarrow x = 60$

Kunci Jawaban: B

38. Pembahasan:  
 $\text{Rata2} = \frac{5 + 18 + 28 + 48 + 36 + 20}{1 + 3 + 4 + 6 + 4 + 2} = 7,75$   
 Banyak siswa dng nilai diatas rata2 =  $6+4+2=12$

Kunci Jawaban: B

39. Pembahasan:  
 $P(2A) = \frac{3}{8}$

Kunci Jawaban: A

40. Pembahasan:  
 $P(\text{hadiah}) = \frac{9}{180} = 0,05$

Kunci Jawaban: C

**UCUN KE- 2**  
**SEKOLAH MENENGAH PERTAMA (SMP)**  
**TAHUN PELAJARAN 2015/2016**

**PEMBAHASAN PAKET B**

Mata Pelajaran : Matematika

1. Pembahasan:

$$\begin{aligned} 2\frac{1}{2} : 1\frac{2}{3} + 5\frac{3}{4} - 1\frac{1}{4} \times 1\frac{1}{3} \\ = \frac{5}{2} \times \frac{3}{5} + \frac{23}{4} - \frac{5}{4} \times \frac{4}{3} \\ = \frac{3}{2} + \frac{23}{4} - \frac{5}{3} \\ = 5\frac{7}{12} \end{aligned}$$

Kunci Jawaban: C

2. Pembahasan:

$$\begin{aligned} p + l &= 48 \\ p &= \frac{7}{12} \times 48 = 28 \text{ m}, l = \frac{5}{12} \times 48 = 20 \text{ m} \\ \text{Luas} &= 28 \times 20 = 560 \text{ m}^2 \end{aligned}$$

Kunci Jawaban: C

3. Pembahasan:

$$\begin{aligned} \text{Panjang} &= 25 \times 3 = 75 \text{ m} \\ \text{Lebar} &= 16 \times 3 = 48 \text{ m} \\ \text{Luas} &= 75 \times 48 = 3.600 \text{ m}^2 \end{aligned}$$

Kunci Jawaban: D

4. Pembahasan:

$$3\sqrt{72} - \sqrt{50} = 3 \times 6\sqrt{2} - 5\sqrt{2} = 13\sqrt{2}$$

Kunci Jawaban: A

5. Pembahasan:

$$25^{\frac{3}{2}} - 8^{\frac{2}{3}} = 5^3 - 2^2 = 121$$

Kunci Jawaban: A

6. Pembahasan:

$$\frac{18}{\sqrt{6}} = \frac{18}{\sqrt{6}} \times \frac{\sqrt{6}}{\sqrt{6}} = 3\sqrt{6}$$

Kunci Jawaban: B

7. Pembahasan:

$$\begin{aligned} \text{Bayar} &= 1(85\% \times 200.000) + 3(65\% \times 80.000) \\ &= 170.000 + 156.000 \\ &= \text{Rp}326.000,00 \end{aligned}$$

Kunci Jawaban: C

8. Pembahasan:

$$\begin{aligned} 672.000 &= 600.000 + \left(\frac{8}{12} \times \frac{p}{100}\right) 600.000 \\ 72.000 &= 4.000p \\ p &= 18\% \end{aligned}$$

Kunci Jawaban: B

9. Pembahasan:

$$\begin{aligned} a + b &= 9 \\ a + 7b &= 33 \\ 6b &= 24 \leftrightarrow b = 4 \text{ dan } a = 5 \\ S_{60} &= \frac{60}{2} (2(5) + 59(4)) = 7.380 \end{aligned}$$

Kunci Jawaban: D

10. Pembahasan:

$$\begin{aligned} U_{10} &= 10^2 - 3(10) = 70 \\ U_{12} &= 12^2 - 3(12) = 108 \\ \text{Jumlah} &= 70 + 108 = 178 \end{aligned}$$

Kunci Jawaban: B

11. Pembahasan:

$$\begin{aligned} 3(4x^2 + 5x - 6) - 8x^2 + 10x - 5 \\ = 12x^2 + 15x - 18 - 8x^2 + 10x - 5 \\ = 4x^2 + 25x - 23 \end{aligned}$$

Kunci Jawaban: A

12. Pembahasan:

$$\begin{aligned} 4(2x + 3) - 1 &= 5x - 4 \\ 8x + 12 - 1 &= 5x - 4 \\ 3x &= -15 \leftrightarrow x = -5 \\ \text{Maka } 2x - 5 &= 2(-5) - 5 = -15 \end{aligned}$$

Kunci Jawaban: A

13. Pembahasan:

$$\begin{aligned} p + l &= 35 \\ \leftrightarrow 5x - 4 + x + 3 &= 35 \\ \leftrightarrow 6x &= 36 \\ \leftrightarrow x &= 6 \\ P = 5x - 4 &= 26, l = x + 3 = 9 \\ \text{Luas} &= 26 \times 9 = 234 \text{ m}^2 \end{aligned}$$

Kunci Jawaban: B

14. Pembahasan:

$$P \cup Q = \{1, 2, 3, 4, 5, 6, 7, 8\}$$

Kunci Jawaban: C

15. Pembahasan:

$$\begin{aligned} A &= \{1, 7\} \rightarrow n(A) = 2 \\ B &= \{2, 3, 5, 7, 11, 13\} \rightarrow n(B) = 6 \\ \text{Banyak pemetaan dari B ke A} &= 2^6 = 64 \end{aligned}$$

Kunci Jawaban: C

16. Pembahasan:

$$\begin{aligned} 3 &\rightarrow 4(3) + 5 = 17 \\ 5 &\rightarrow 4(5) + 5 = 25 \\ 7 &\rightarrow 4(7) + 5 = 33 \\ &\dots \\ 21 &\rightarrow 4(21) + 5 = 89 \end{aligned}$$

Kunci Jawaban: D

17. Pembahasan:

$$f(b) = 2b - 5 = 7 \rightarrow b = 6$$

Kunci Jawaban: C

18. Pembahasan:

$$\begin{aligned} m &= \frac{-5-5}{2-(-3)} = -2 \\ \text{PGL: } y &= -2x + c, \text{ karena melalui titik } (-3,5), \text{ maka } 5 = - \\ &2(-3) + c \leftrightarrow c = -1 \\ \text{Jadi PGL: } y &= -2x - 1 \end{aligned}$$

Kunci Jawaban: A

19. Pembahasan:

$$\begin{aligned} \text{gradien}_p &= -2, \text{ gradien}_a = \frac{1}{2} \\ \text{Garis a: } y &= \frac{1}{2}x + c, \text{ karena melalui } (-2,0), \text{ maka} \\ 0 &= \frac{1}{2}(-2) + c \leftrightarrow c = 1 \\ \text{Jadi garis a: } y &= \frac{1}{2}x + 1, \text{ atau } 2y - x = 2 \end{aligned}$$

Kunci Jawaban: D

20. Pembahasan:

$$\begin{aligned} 2m + 5j &= 60 \leftrightarrow 4m + 10j = 120 \\ 4m + 3j &= 64 \leftrightarrow 4m + 3j = 64 \\ &7j = 56 \leftrightarrow j = 8 \\ 2m + 5(8) &= 60 \leftrightarrow m = 10 \\ \text{Jadi } 3m + 2j &= 3(10) + 2(8) = 46 \end{aligned}$$

Kunci Jawaban: D

21. Pembahasan:

$$\begin{aligned} p &= 4l \\ p + l &= 30 \\ \leftrightarrow 4l + l &= 30 \leftrightarrow l = 6 \leftrightarrow p = 24 \\ \text{Luas} &= 6 \times 24 = 144 \text{ m}^2 \end{aligned}$$

Kunci Jawaban: B

22. Pembahasan:

$$t = \sqrt{5^2 - 1,4^2} = 4,8 \text{ m}$$

Kunci Jawaban: A

23. Pembahasan:

$$\begin{aligned} L_{\text{arsir}} &= (9 \times 9) + (15 \times 8) - 2(4 \times 5) \\ &= 161 \text{ cm}^2 \end{aligned}$$

Kunci Jawaban: A

24. Pembahasan:

$$\begin{aligned} \text{Luas jalan} &= (24 \times 19) - (20 \times 15) = 156 \text{ m}^2 \\ \text{Harga keramik} &= 156 \times 50.000 = \text{Rp}7.800.000,00 \end{aligned}$$

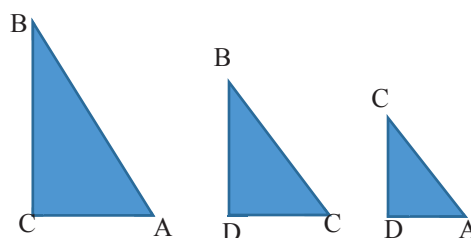
Kunci Jawaban: D

25. Pembahasan:

$$K = 2(17 + 19) = 72 \text{ cm}$$

Kunci Jawaban: C

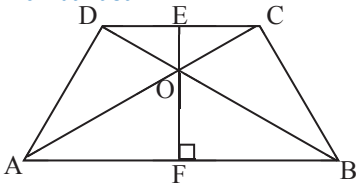
26. Pembahasan:



$$\text{Berlaku: } \frac{AD}{CD} = \frac{CD}{BD} = \frac{AC}{BC}$$

Kunci Jawaban: B

27. Pembahasan:



Segitiga yang kongruen

- $\triangle AOF \cong \triangle BOF$
- $\triangle AOD \cong \triangle BOC$
- $\triangle ABC \cong \triangle BAC$
- $\triangle ADC \cong \triangle BCD$
- $\triangle DOE \cong \triangle COE$

Kunci Jawaban: B

28. Pembahasan:

$$\text{Besarnya sudut} = 3(30^\circ) + \frac{50}{60}(30^\circ) = 115^\circ$$

Kunci Jawaban: D

29. Pembahasan:

$$\begin{aligned} \angle AOC &= 78^\circ \\ \angle BOC &= 180^\circ - 78^\circ = 102^\circ \\ \angle BDC &= \frac{1}{2} \times 102^\circ = 51^\circ \end{aligned}$$

Kunci Jawaban: C

30. Pembahasan:

$$\text{Luas ORQ} = \frac{80}{60} \times 24 = 32 \text{ cm}^2$$

Kunci Jawaban: C

31. Pembahasan:

$$\begin{aligned} \text{Banyak rusuk limas} &= 2n = 14 \\ \text{Banyak sisi limas} &= n + 1 = 8 \end{aligned}$$

Kunci Jawaban: A

32. Pembahasan:

$$\begin{aligned} \text{Panjang kerangka} &= 4(15 + 12 + 6) = 132 \text{ cm} \\ \text{Sisa kawat} &= 600 - 4(132) = 72 \text{ cm} \end{aligned}$$

Kunci Jawaban: B

33. Pembahasan:

$$\begin{aligned} \text{Luas} &= \text{Luas alas} + \frac{1}{2} K \text{ alas} \times t \\ &= 10 \times 10 + \frac{1}{2} \times 40 \times 13 \\ &= 360 \text{ cm}^2 \end{aligned}$$

Kunci Jawaban: B

34. Pembahasan:

$$\text{Biaya} = 50 \times \frac{22}{7} \times \frac{21}{2} \times 20 \times 8.000 = \text{Rp}264.000,00$$

Kunci Jawaban: A

35. Pembahasan:

$$V_{\text{baru}} = 80 \times 2 \times 2 = 320 \text{ m}^2$$

Kunci Jawaban: C

36. Pembahasan:

$$\begin{aligned} \text{Data: } &2, 3, 5, 5, 5, 6, 7, 7, 7, 7, 9, 10 \\ \text{Median} &= 6,5 \end{aligned}$$

Kunci Jawaban: A

37. Pembahasan:

$$\begin{aligned} 75 &= \frac{100 + 60 + 60 + 70 + 80 + x}{6} \\ \leftrightarrow 450 &= 370 + x \\ \leftrightarrow x &= 80 \end{aligned}$$

Kunci Jawaban: C

38. Pembahasan:

$$\begin{aligned} \text{mean} &= \frac{5 + 18 + 28 + 48 + 36 + 20}{1 + 3 + 4 + 6 + 4 + 2} \\ &= \frac{155}{20} = 7,75 \\ \text{Banyak nilai} &< \text{mean} = 1 + 3 + 4 = 8 \end{aligned}$$

Kunci Jawaban: C

39. Pembahasan:

$$P(2A) = \frac{3}{8}$$

Kunci Jawaban: A

40. Pembahasan:

$$P(\text{hadiah}) = \frac{6}{150} = 0,04$$

Kunci Jawaban: D