

**UJI COBA KOMPETENSI TAHAP 2 - PAKET B
SEKOLAH MENENGAH PERTAMA (SMP)
TAHUN PELAJARAN 2011/2012**

JAWABAN

Mata Pelajaran : Matematika
Satuan Pendidikan : Sekolah Menengah Pertama (SMP)
Hari/Tanggal : 14 Maret 2012
W a k t u : 120 Menit

1. Jawaban:

$$8 + (-5) - (-2) \times 6 = 3 + 12 = 15$$

Kunci: A

2. Jawaban:

$$\text{Selisih kelereng} = \frac{7-4}{11} \times 66 = 18$$

Kunci: C

3. Jawaban:

$$9\sqrt{12} - 5\sqrt{75} = 9 \times 2\sqrt{3} - 5 \times 5\sqrt{3} = -7\sqrt{3}$$

Kunci: A

4. Jawaban:

$$16^{\frac{3}{2}} = (4^2)^{\frac{3}{2}} = 4^3 = 64$$

Kunci: D

5. Jawaban:

$$\frac{15}{3\sqrt{5}} = \frac{15}{3\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \sqrt{5}$$

Kunci: A

6. Jawaban:

$$\begin{aligned} \text{Bunga 9 bulan} &= \text{Rp}860.000,00 - \text{Rp}800.000,00 \\ &= \text{Rp}60.000,00 \end{aligned}$$

$$\text{Bunga 1 tahun} = \frac{12}{9} \times \text{Rp}60.000,00 = \text{Rp}80.000,00$$

$$\text{Persen bunga} = \frac{80.000}{800.000} \times 100\% = 10\%$$

Kunci: A

7. Jawaban:

$$U_{70} = a + 69b = 3 + 69 \times 4 = 279$$

Kunci: B

8. Jawaban:

$$U_2 = 30 \rightarrow ar = 30$$

$$U_5 = 240 \rightarrow ar^4 = 240$$

$$\rightarrow ar \times r^3 = 240$$

$$\rightarrow 30r^3 = 240$$

$$\rightarrow r^3 = 8$$

$$\rightarrow r = 2$$

$$ar = 30 \rightarrow a \times 2 = 30 \rightarrow a = 15$$

$$15 + 30 + 60 + 120 + 240 + 480 + 960 = 1.905$$

Kunci: C

9. Jawaban:

$$S_n = \frac{1}{2}n(2a + (n-1)b)$$

$$S_{15} = \frac{15}{2}(2 \times 16 + 14(3)) = 555$$

Kunci: A

10. Jawaban:

$$U_8 = ar^7 = 15 \times 2^7 = 3.840$$

Atau dibuat tabel

U_1	U_2	U_3	U_4	U_5	U_6	U_7	U_8
10.15	10.30	10.45	11.00	11.15	11.30	11.45	12.00
30	60	120	240	480	960	1920	3840

Kunci: D

11. Jawaban:

$$64x^2 - 49 = (8x + 7)(8x - 7)$$

Kunci: A

12. Jawaban:

$$\begin{aligned} p &= 3l \\ \leftrightarrow 2p + 2l &= 240 \\ \leftrightarrow 2(3l) + 2l &= 240 \\ \leftrightarrow 8l &= 240 \\ \leftrightarrow l &= 30 \text{ m}, p = 3l = 90 \text{ m} \end{aligned}$$

$$\text{Luas} = p \times l = 90 \times 30 = 2.700 \text{ m}^2$$

Kunci: B

13. Jawaban:

Komplemen P adalah semua anggota S yang bukan anggota P, yaitu {1, 4, 6, 8, 9}

Kunci: D

14. Jawaban:

$$\begin{aligned} n(A \cup B) &= n(A) + n(B) - n(A \cap B) \\ &= 32 + 27 - 15 \\ &= 44 \end{aligned}$$

Kunci: B

15. Jawaban:

$$\begin{aligned} f(x) &= 6x - 5 \\ f(3a+1) &= 6(3a+1) - 5 = 18a + 1 \end{aligned}$$

Kunci: C

16. Jawaban:

$$m = \frac{1-7}{-2-(-5)} = \frac{-6}{3} = -2$$

Kunci: B

17. Jawaban:

$$\begin{aligned} 3x - 2y + 6 &= 0 \leftrightarrow y = \frac{3}{2}x + 3 \leftrightarrow m_1 = \frac{3}{2} \leftrightarrow \\ m_2 &= -\frac{2}{3} \text{ (tegak lurus)} \\ \text{PG dengan gradien } -\frac{2}{3} &\text{ adalah } y = -\frac{2}{3}x + c, \\ \text{karena melalui } (6, -2) &\text{ maka } -2 = -\frac{2}{3}(6) + c \leftrightarrow c = 2 \\ \text{Jadi } y &= -\frac{2}{3}x + 2 \text{ atau } 3y + 2x - 6 = 0 \end{aligned}$$

Kunci: B

18. Jawaban:

$$\begin{aligned} 5p - q &= 14 & \rightarrow 10p - 2q &= 28 \\ 3p + 2q &= 12 & \rightarrow 3p + 2q &= -2 \\ & & 13p &= 26 \\ & & p &= 2 \end{aligned}$$

$$\begin{aligned} 5p - q &= 14 \\ 10 - q &= 14 \\ q &= -4 \end{aligned}$$

$$p + 3q = 2 + 3(-4) = -10$$

Kunci: A

19. Jawaban:

Misalkan x adalah banyaknya mobil dan y adalah banyaknya motor, maka:

$$\begin{aligned} x + y &= 105 & \rightarrow x + y &= 105 \\ 4x + 2y &= 300 & \rightarrow 2x + y &= 150 \\ & & x &= 45 \end{aligned}$$

$$\begin{aligned} x + y &= 105 \\ 45 + y &= 105 \\ y &= 60 \end{aligned}$$

$$\begin{aligned} \text{Pendapatan} &= 5.000x + 2.000y \\ &= 5.000(45) + 2.000(60) \\ &= \text{Rp}345.000,00 \end{aligned}$$

Kunci: (ANULIR)

20. Jawaban:

$$\begin{aligned} \text{Keliling} &= 80 \text{ cm} \rightarrow s = 20 \text{ cm} \\ \text{Diagonal} &= 32 \text{ cm} \rightarrow \frac{1}{2}d_1 = 16 \text{ cm} \\ \text{Dengan rumus Pythagoras } \frac{1}{2}d_2 &= 12 \text{ cm} \\ \text{Luas} &= \frac{1}{2}d_1d_2 = \frac{1}{2} \times 32 \text{ cm} \times 24 \text{ cm} = 384 \text{ cm}^2 \end{aligned}$$

Kunci: B

21. Jawaban:

$$\begin{aligned} \text{Luas trapesium} &= \frac{1}{2} \times 4(11 + 17) = 56 \text{ cm}^2 \\ \text{Sisi segitiga } 17 \text{ cm, } 15 \text{ cm dan } 8 \text{ cm} \\ \text{Luas segitiga} &= \frac{1}{2} \times 15 \times 8 = 60 \text{ cm}^2 \\ \text{Luas gabungan} &= 116 \text{ cm}^2 \end{aligned}$$

Kunci: C

22. Jawaban:

$$s = \sqrt{20^2 + 15^2} = 25 \text{ cm}$$

$$\begin{aligned} \text{Keliling} &= 4s = 100 \text{ m} \\ \text{Banyak pohon} &= 100 \text{ m} : 5 \text{ m} = 20 \end{aligned}$$

Kunci: B

23. Jawaban:

$$\text{Pelurus sudut } 66^\circ = 180^\circ - 66^\circ = 114^\circ$$

Kunci: C

24. Jawaban:

$$\begin{aligned}l^2 &= d^2 - (R + r)^2 \\ \Leftrightarrow 10^2 &= 26^2 - (R + 6)^2 \\ \Leftrightarrow (R + 6)^2 &= 24^2 \\ \Leftrightarrow R + 6 &= 24 \\ \Leftrightarrow R &= 24 - 6 \\ \Leftrightarrow R &= 18 \text{ cm}\end{aligned}$$

Kunci: D

25. Jawaban:

RQ melalui titik tengah AB dan tegak lurus AB , dinamakan garis sumbu

Kunci: C

26. Jawaban:

$$\begin{aligned}\angle A &= \angle Z = 55^\circ \\ \angle B &= \angle X = 65^\circ \\ \angle C &= \angle Y = 60^\circ \\ \mathbf{AB} &= \mathbf{XZ}, \mathbf{AC} = \mathbf{YZ}, \mathbf{BC} = \mathbf{XY}\end{aligned}$$

Kunci: B

27. Jawaban:

$$\begin{aligned}\frac{3}{3+4} &= \frac{x}{23-9} \\ \Leftrightarrow 7x &= 42 \\ \Leftrightarrow x &= 6 \text{ cm} \\ \text{Panjang } XY &= 9 + 6 = 15 \text{ cm}\end{aligned}$$

Kunci: B

28. Jawaban:

$$\begin{aligned}\frac{20}{20+2+2} &= \frac{30}{x} \\ \Leftrightarrow 20x &= 720 \\ \Leftrightarrow x &= 36 \text{ cm} \\ \text{Lebar karton bagian bawah} &= 36 - 30 - 2 = 4 \text{ cm}\end{aligned}$$

Kunci: C

29. Jawaban:

$$\text{Banyak rusuk limas segi } 8 = 2 \times 8 = 16$$

Kunci: C

30. Jawaban:

Panjang kerangka balok = $4(17 + 10 + 8) = 140$ cm.
Untuk membuat 4 buah kerangka dibutuhkan 560 cm,
Sisa kawat adalah $600 - 560 = 40$ cm

Kunci: C

31. Jawaban:

$$\begin{aligned}V &= \frac{1}{3}\pi r^2 t \\ &= \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 24 \\ &= 1.232 \text{ cm}^3\end{aligned}$$

Kunci: B

32. Jawaban:

$$\begin{aligned}V &= \frac{1}{3}L_a t \\ &= \frac{1}{3} \times \left(\frac{1}{2} \times 16 \times 10\right) \times 18 \\ &= 480 \text{ cm}^3\end{aligned}$$

Kunci: A

33. Jawaban:

$$\begin{aligned}\text{Luas selimut} &= \pi r s = \frac{22}{7} \times \frac{21}{2} \times 20 = 660 \text{ cm}^2 \\ \text{Luas karton} &= 50 \times 660 \text{ cm}^2 \\ &= 33.000 \text{ cm}^2 \\ &= 3,3 \text{ m}^2 \\ \text{Biaya} &= \text{Rp}80.000,00 \times 3,3 \\ &= \text{Rp}264.000,00\end{aligned}$$

Kunci: A

34. Jawaban:

$$\begin{aligned}\text{Luas} &= \text{luas selimut tabung} + \text{luas bola} \\ &= (2 \times 3,14 \times 10 \times 15) + (4 \times 3,14 \times 10 \times 10) \\ &= 942 + 1256 \\ &= 2.198 \text{ cm}^2\end{aligned}$$

Kunci: D

35. Jawaban:

Modusnya 7 (muncul 3 kali)

Data urut: 3, 4, 4, 5, 5, 6, 7, 7, 7, 8, 8, 9
Mediannya adalah 6,5

Kunci: C

36. Jawaban:

$$\text{Rata-rata} = \frac{14 \times 60 + 6 \times 70}{14 + 6} = 63 \text{ kg}$$

Kunci: A

37. Jawaban:

$$\text{Rataan} = \frac{1 \times 5 + 2 \times 6 + 3 \times 7 + 5 \times 8 + 4 \times 9 + 5 \times 10}{1 + 2 + 3 + 5 + 4 + 5} = 8,2$$

Banyak siswa dengan nilai kurang dari rata-rata
 $= 1 + 2 + 3 + 5$
 $= 11$ orang

Kunci: D

38. Jawaban:

$$S = \{1, 2, 3, 4, 5, 6\}$$

$$K = \{1, 2, 3, 6\}$$

$$P(K) = \frac{n(K)}{n(S)} = \frac{4}{6} = \frac{2}{3}$$

Kunci: D

39. Jawaban:

$$S = \{AAA, AAG, AGA, GAA, AGG, GAG, GGA, GGG\}$$

$$K = \{AGG, GAG, GGA, AAG, AGA, GAA, AAA\}$$

$$P(K) = \frac{n(K)}{n(S)} = \frac{7}{8}$$

Kunci: D

40. Jawaban:

Dedi	Tuti					
	Sen	Sel	Rab	Kam	Jum	Sab
Sen		SS				
Sel	SS		SR			
Rab		SR		RK		
Kam			RK		KJ	
Jum				KJ		JS
Sab					JS	

$$P(K) = \frac{n(K)}{n(S)} = \frac{10}{36} = \frac{5}{18}$$

Kunci: C

KUNCI TUKPD-2 MATEMATIKA PAKET **B**

NOMOR	JAWABAN
1	A
2	C
3	A
4	D
5	A
6	A
7	B
8	C
9	A
10	D
11	A
12	B
13	D
14	B
15	C
16	B
17	B
18	A
19	ANULIR
20	B

NOMOR	JAWABAN
21	C
22	B
23	C
24	D
25	C
26	B
27	B
28	C
29	C
30	C
31	B
32	A
33	A
34	D
35	C
36	A
37	D
38	D
39	D
40	C
