

**UJI COBA KOMPETENSI TAHAP 2 – PAKET A
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:

$$\begin{aligned}7 - (-5) + (-2) \times 4 \\= 7 + 5 + (-8) \\= 4\end{aligned}$$

Kunci: B

2. Jawaban:

$$\begin{aligned}\left(\frac{7}{10} - \frac{3}{10}\right)x = 60.000 \\ \frac{4}{10}x = 60.000 \\ x = 60.000 \times \frac{10}{4} \\ x = \text{Rp}150.000,00\end{aligned}$$

Kunci: B

3. Jawaban:

$$\begin{aligned}3\sqrt{20} + 2\sqrt{80} \\= 3 \times 2\sqrt{5} + 2 \times 4\sqrt{5} \\= 6\sqrt{5} + 8\sqrt{5} \\= 14\sqrt{5}\end{aligned}$$

Kunci: C

4. Jawaban:

$$16^{\frac{3}{4}} = (2^4)^{\frac{3}{4}} = 2^3 = 8$$

Kunci: B

5. Jawaban:

$$\frac{12}{4\sqrt{3}} = \frac{12}{4\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \sqrt{3}$$

Kunci: D

6. Jawaban:

$$\begin{aligned}\text{Bunga 8 bulan} &= \text{Rp}560.000,00 - \text{Rp}500.000,00 \\ &= \text{Rp}60.000,00 \\ \text{Bunga 1 tahun} &= \frac{12}{8} \times \text{Rp}60.000,00 = \text{Rp}90.000,00 \\ \text{Persen bunga} &= \frac{90.000}{500.000} \times 100\% = 18\%\end{aligned}$$

Kunci: D

7. Jawaban:

$$U_{80} = a + 79b = 4 + 79(3) = 241$$

Kunci: A

8. Jawaban:

$$\begin{aligned}U_3 = 90 &\rightarrow ar^2 = 90 \\ U_5 = 810 &\rightarrow ar^4 = 810 \\ &\rightarrow ar^2 \times r^2 = 810 \\ &\rightarrow 90r^2 = 810 \\ &\rightarrow r^2 = 9 \\ &\rightarrow r = 3\end{aligned}$$

$$ar^2 = 90 \rightarrow a \times 3^2 = 90 \rightarrow a = 10$$

$$\begin{aligned}S_n &= \frac{a(r^n - 1)}{r - 1} \\ S_6 &= \frac{10(3^6 - 1)}{3 - 1} = 5(729 - 1) = 3.640\end{aligned}$$

Kunci: D

9. Jawaban:

$$\begin{aligned}S_n &= \frac{1}{2}n(2a + (n - 1)b) \\ S_{20} &= 10(2 \times 15 + 19(4)) = 1.060\end{aligned}$$

Kunci: B

10. Jawaban:

$$U_8 = ar^7 = 25 \times 2^7 = 3.200$$

Atau dibuat tabel:

U_1	U_2	U_3	U_4	U_5	U_6	U_7	U_8
12.40	12.52	13.04	13.16	13.28	13.40	13.52	14.04
25	50	100	200	400	800	1600	3200

Kunci: D

11. Jawaban:

$$25x^2 - 36 = (5x + 6)(5x - 6)$$

Kunci: C

12. Jawaban:

Panjang diagonal persegi panjang adalah sama.

$$4x - 2 = 2x + 4$$

$$\leftrightarrow 2x = 6$$

$$\leftrightarrow x = 3$$

Kunci: B

13. Jawaban:

Komplemen B adalah semua anggota S yang bukan anggota B, yaitu $\{0, 2, 4, 7\}$

Kunci: A

14. Jawaban:

$$\begin{aligned}
 n(A \cup B) &= n(A) + n(B) - n(A \cap B) \\
 &= 25 + 30 - 12 \\
 &= 43
 \end{aligned}$$

Kunci: C

15. Jawaban:

$$f(x) = 5x - 9$$

$$f(2a+1) = 5(2a+1) - 9 = 10a + 5 - 9 = 10a - 4$$

Kunci: D

16. Jawaban:

$$m = \frac{-5 - 4}{2 - (-1)} = \frac{-9}{3} = -3$$

Kunci: A

17. Jawaban:

$$y - 3x - 12 = 0 \leftrightarrow y = 3x + 12 \leftrightarrow m = 3$$

PG dengan gradien 3 adalah $y = 3x + c$,

karena melalui $(-3, 2)$ maka $2 = 3(-3) + c \leftrightarrow c = 11$

Jadi $y = 3x + 11$ atau $y - 3x = 11$

Kunci: B

18. Jawaban:

$$4x - 3y = 23 \quad \rightarrow 8x - 6y = 46$$

$$3x + 2y = -4 \quad \rightarrow 9x + 6y = -12$$

$$17x = 34$$

$$x = 2$$

$$3x + 2y = -4$$

$$3(2) + 2y = -4$$

$$2y = -10$$

$$y = -5$$

$$\text{jadi } 2x - 3y = 2(2) - 3(-5) = 19$$

Kunci: D

19. Jawaban:

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

$$x + y = 90 \quad \rightarrow x + y = 90$$

$$4x + 2y = 210 \quad \rightarrow 2x + y = 105$$

$$x = 15$$

$$x + y = 90$$

$$15 + y = 90$$

$$y = 75$$

$$\text{Pendapatan} = 5.000x + 3.000y$$

$$= 5.000(15) + 3.000(75)$$

$$= \text{Rp}300.000,00$$

Kunci: C

20. Jawaban:

$$\text{Keliling} = 100 \text{ cm} \rightarrow s = 25 \text{ cm}$$

$$\text{Diagonal} = 30 \text{ cm} \rightarrow \frac{1}{2} d_1 = 15 \text{ cm}$$

Dengan rumus Pythagoras $\frac{1}{2} d_2 = 20 \text{ cm}$

$$\text{Luas} = \frac{1}{2} d_1 d_2 = \frac{1}{2} \times 30 \text{ cm} \times 40 \text{ cm} = 600 \text{ cm}^2$$

Kunci: A

21. Jawaban:

$$AC = 16 \text{ cm} \rightarrow OC = 8 \text{ cm}$$

$$BC = 10 \text{ cm} \rightarrow BO = 6 \text{ cm} \text{ (Tripel Pythagoras)}$$

$$OD = 15 \text{ cm} \rightarrow CD = 17 \text{ cm} \text{ (Tripel Pythagoras)}$$

$$BD = BO + DO = 6 \text{ cm} + 15 \text{ cm} = 21 \text{ cm}$$

Luas = luas layang-layang + luas jajargenjang

$$= \frac{1}{2} d_1 d_2 + at$$

$$= \frac{1}{2} \times 16 \times 21 + 17 \times 10$$

$$= 168 + 170$$

$$= 338 \text{ cm}^2$$

Kunci: D

22. Jawaban:

$$K = 2p + 2l = 2(12) + 2(9) = 42 \text{ cm}$$

$$\text{Biaya} = \frac{42}{3} \times \text{Rp}800.000,00 = \text{Rp}11.200.000,00$$

Kunci: C

23. Jawaban:

$$\text{Penyiku sudut } 74^\circ = 90^\circ - 74^\circ = 16^\circ$$

Kunci: A

24. Jawaban:

$$\begin{aligned} l^2 &= d^2 - (R - r)^2 \\ \Leftrightarrow 24^2 &= 25^2 - (16 - r)^2 \\ \Leftrightarrow (16 - r)^2 &= 7^2 \\ \Leftrightarrow 16 - r &= 7 \\ \Leftrightarrow r &= 16 - 7 \\ \Leftrightarrow r &= 9 \text{ cm} \end{aligned}$$

Kunci: B

25. Jawaban:

CQ melalui tengah-tengah *AB*, dinamakan garis berat

Kunci: D

26. Jawaban:

$$\begin{aligned} \angle P &= \angle M = 50^\circ \\ \angle Q &= \angle K = 75^\circ \\ \angle R &= \angle L = 55^\circ \\ PQ &= KM, PR = ML, QR = KL \end{aligned}$$

Kunci: B

27. Jawaban:

$$\begin{aligned} \frac{2}{2+3} &= \frac{x}{25-10} \\ \Leftrightarrow 5x &= 30 \\ \Leftrightarrow x &= 6 \\ \text{Jadi panjang } TU &= 10 + 6 = 16 \text{ cm} \end{aligned}$$

Kunci: C

28. Jawaban:

$$\begin{aligned} \frac{18}{18+3+3} &= \frac{24}{24 \times 24} t \\ \Leftrightarrow t &= \frac{18}{24} \\ \Leftrightarrow t &= 32 \text{ cm} \\ \text{Lebar karton bagian bawah} &= 32 - 24 - 3 \\ &= 5 \text{ cm} \end{aligned}$$

Kunci: B

29. Jawaban:

$$\text{Banyak sisi limas segi-6} = 6 + 1 = 7$$

Kunci: A

30. Jawaban:

Panjang kerangka balok
 $= 4(25 + 20 + 10)$
 $= 220 \text{ cm}$
Untuk membuat 4 buah kerangka dibutuhkan 880 cm, sisa kawat adalah 120 cm

Kunci: D

31. Jawaban:

$$\begin{aligned} V_{\text{kerucut}} &= \frac{1}{3} \pi r^2 t \\ &= \frac{1}{3} \times 3,14 \times 5 \times 5 \times 12 \\ &= 314 \text{ cm}^3 \end{aligned}$$

Kunci: A

32. Jawaban:

$$\begin{aligned} V &= \frac{1}{3} L_a t \\ &= \frac{1}{3} \times \left(\frac{1}{2} \times 15 \times 8 \right) \times 12 \\ &= 240 \text{ cm}^3 \end{aligned}$$

Kunci: C

33. Jawaban:

$$\begin{aligned} \text{Panjang garis pelukis} &= \sqrt{24^2 + 10^2} = 26 \text{ cm} \\ \text{Luas selimut} &= \pi r s = 3,14 \times 10 \times 26 = 816,4 \text{ cm}^2 \\ \text{Luas karton} &= 100 \times 816,4 \text{ cm}^2 \\ &= 81640 \text{ cm}^2 \\ &= 8,164 \text{ m}^2 \end{aligned}$$

Kunci: C

34. Jawaban:

$$\begin{aligned} \text{Luas} &= \text{luas selimut tabung} + \text{luas bola} \\ &= \left(2 \times \frac{22}{7} \times \frac{21}{2} \times 10 \right) + \left(4 \times \frac{22}{7} \times \frac{21}{2} \times \frac{21}{2} \right) \\ &= 660 + 1386 \\ &= 2.046 \text{ cm}^2 \end{aligned}$$

Kunci: B

35. Jawaban:

Modusnya adalah 5 (muncul 3 kali)

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

Kunci: A

36. Jawaban:

$$\text{Rata-rata} = \frac{12 \times 65 + 8 \times 75}{12 + 8} = 69 \text{ kg}$$

Kunci: B

37. Jawaban:

$$\text{Rataan} = \frac{1 \times 5 + 3 \times 6 + 4 \times 7 + 6 \times 8 + 4 \times 9 + 2 \times 10}{1 + 3 + 4 + 6 + 4 + 2} = 7,75 \quad \text{Kunci: A}$$

Banyak siswa dengan nilai lebih dari rata-rata
 $= 6 + 4 + 2 = 12$ orang

Kunci: C

38. Jawaban:

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

$$K = \{1, 3, 5\}$$

$$P(K) = \frac{n(K)}{n(S)} = \frac{3}{6} = \frac{1}{2}$$

Kunci: C

39. Jawaban:

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

$$K = \{AAA\}$$

$$P(K) = \frac{n(K)}{n(S)} = \frac{1}{8}$$

40. Jawaban:

Budi	Tini			
	Senin	Selasa	Rabu	Kamis
Senin		SS		
Selasa	SS		SR	
Rabu		SR		RK
Kamis			RK	

$$P(K) = \frac{n(K)}{n(S)} = \frac{6}{16} = \frac{3}{8}$$

Kunci: C

KUNCI TUKPD-2 MATEMATIKA PAKET **A**

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

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